THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · THE RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · THE RAILWAY OFFICIAL GAZETTE

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
Telephone: WHItehall 9233 (12 lines) Telegrams: "Trazette Parl, London"

BRANCH OFFICES
GLASGOW: 87, Union Street — *Central 4646*
NEWCASTLE-ON-TYNE: 21, Mosley Street — *Newcastle-on-Tyne 22239*
MANCHESTER: Century House, St. Peter's Square — *Central 3101*
BIRMINGHAM: 90, Hagley Road, Edgbaston — *Edgbaston 2466*
LEEDS: 70, Albion Street — *Leeds 27174*

Annual subscription £4 10s. 0d. post free. Single copies, Two shillings
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Vol. 95] FRIDAY, OCTOBER 26, 1951 [No. 17

CONTENTS

	PAGE
Editorial Notes	449
Problems and Progress in Rhodesia	451
The Inspecting Engineer and Railway Economy	451
Recent Trends in U.S.A. Railway Results	452
British Transport Commission Traffic Receipts	453
French Signalling Progress	454
Letters to the Editor	455
The Scrap Heap	456
Overseas Railway Affairs	457
A Mechanical Vibrator for Laboratory Test Sieves	459
Modern General-Purpose Locomotives for Western Australia	461
Lightweight Steel Restaurant Cars in Switzerland	466
Personal	467
Passenger Charges Scheme, 1951	470
Railway Wages and Salaries	472
Notes and News	474

Railway Wage Claim

THE hearing before the Railway Staff National Tribunal of the three railway unions' concerted claim, lodged at the end of July, for a flat 10 per cent. increase in wages, was not completed at the time of going to press. It is clear from the account of the proceedings given elsewhere in this issue that no new argument has so far been advanced. The unions' case is twofold: the rise in the cost of living since the last wage increase in February of this year, and the aggravation of the railway staff shortage by the better pay and conditions in industries which compete with the railways for manpower. In reply, Mr. W. P. Allen, Member of the Railway Executive for staff and establishment matters, has stressed the very great increase since 1938 in the railways' outgoings on wages and salaries, insurance, welfare and education measures, uniforms, and other staff items. The wages and salaries bill for 1951, he has pointed out, will probably be £241½ million, compared with £104 million for 1938, or an increase of 132·5 per cent. Despite the present financial position of the railways, the Railway Executive was quick to respond in August to the unions' claim by an offer—generous in prevailing circumstances—of varying increases in pay scales resulting in percentage increases over pay rates in September, 1950, which in some cases exceeded the rise in the cost of living, and was below it only in very few cases. The offer, as we have pointed out in previous issues, was designed to overcome staff recruiting difficulties by benefiting the grades most affected by the attractions of outside industry. Furthermore, the number of staff receiving a wage increase of less than 11·5 per cent. would have been a small proportion of those for whom the unions' claim was made. Nevertheless, the Railway Executive offer was refused, and the matter has pursued its course as a dispute for arbitration. Perhaps the most novel feature of the hearing has been the strength of the Executive case against a wage increase, in the light of the failure of some union members to fulfil their obligations under the wage agreement of last February to assist in manpower economy by ceasing from restrictive practices. There has been unjustifiable opposition to economy measures, so that progress in the negotiations between the Executive and union representatives on such measures has been disappointingly slow. Any award which the Tribunal may make can hardly fail to require further co-operation from the unions in this matter.

Passenger Charges Scheme Inquiry

WHEN Mr. A. B. B. Valentine, Member of the London Transport Executive, was called to give evidence on behalf of the British Transport Commission before the Transport Tribunal in London last week, the point was raised that, from the trend of receipts before charges were increased in 1950, traffic obviously was declining from some other cause, and this has been put down to a reduced willingness or ability on the part of the public to spend money on travel and also to petrol derationing and bad weather. Many points concerning special fare concessions have been raised at the inquiry during the past week and the B.T.C. considers that these should be withdrawn as there is no good reason for some passengers to be allowed to travel at lower rates than others and without contributing their appropriate share. The inquiry is now in its third week, and Sir Malcolm Trustram Eve, K.C., Chief Advocate for the B.T.C., stated on Monday that if the proposed scheme could be put into effect immediately, it would bring in £100,000 a day. Our summary of the inquiry is continued in other pages this week.

Making C.I.E. Self-Sufficient

CORAS Iompair Eireann is expected to show a deficit of at least £1,500,000 this year, and the loss will have to be met by additional taxation. It has been asked by the Government of the Republic to submit proposals, based on the assumptions which would be made by a business executive, for bringing its operating costs within revenue. Mr. Sean Lemass, Minister for Industry & Commerce, in making this known in a recent speech, said that when these proposals were forthcoming, major decisions on transport policy in the Twenty-Six Counties would have to be made. He is against a further increase in rates and fares which are already as high as the traffic will bear. C.I.E. officers and staff should show that they can beat the private operator in reliability and thereby win back traffic lost as the result of stoppages of railway services caused by strikes. Mr. Lemass also calls for a new approach to the whole question of railway operating methods and for considerable investment in new equipment. He takes a realistic view in opposing the principle of a subsidy for transport, and makes it clear that although the Government will have to help C.I.E. to meet its financial difficulties for the current year, he expects the company to adopt a commercial outlook on its problems and to evolve means of meeting the competition of private hauliers.

A New Phase in Irish Transport

OUR views on subsidies for transport undertakings are well known. They tend to blunt initiative and, if necessary to meet exceptional circumstances, should have a definite term placed on them. In the case of C.I.E. it might be better to permit the undertaking to carry forward its deficit at the end of the year—as does the British Transport Commission—and enable it to wipe it out in subsequent years. To do so, however, C.I.E. would have to (i) have

the courage to charge the full cost of all the services provided plus the amount necessary to eliminate the deficit, or (ii) make such drastic curtailments in its less remunerative services as would inevitably have wide repercussions among the public. It might appear from Mr. Lemass's statement that the second course is envisaged, for he undertakes if the company deals with the matter on the business basis, that the " economic, social, and political problems shall be considered by the Government." Just what that means is not clear. If it is taken to indicate that the Government is prepared to support C.I.E. in its decisions—taken on purely commercial considerations—then a new phase in Irish transport affairs will be opened. To do so would need great political courage but the ultimate rewards might compensate for the initial unpopularity.

South African Railways Expenditure

THE South African Railways are spending an estimated £6,250,000 on the new station at Johannesburg. When he laid the foundation stone of one of its buildings last month Mr. N. C. Havenga, Minister of Finance, said that the sum total of expenditure on this one work was " somewhat alarming "; it had to be asked whether it would prove a sound investment. The new works programme of the administration has been carefully examined and only essential projects have been retained. Parts of the programme of improving Johannesburg Station, used by 116,000,000 passengers a year and served by nearly 800 trains a day, fall within this category. South Africa is passing through a stage of unprecedented development. The Treasury, continually faced with demands for more loan funds for numerous purposes, has to exercise strict economy in its allocations. The expansion of its railways is essential to increased production and a high priority has to be given to their capital requirements. Under powers granted, £103,000,000 must be spent on new works and equipment to bring the railways up to the level of traffic demands.

Catering for South African Industry

THE South African railway loan capital account is now £336,000,000; on £306,000,000 of this interest is payable, yet the railways have never defaulted in interest payments. It must be remembered that they receive no government subsidy. Despite rising costs—since 1939 labour costs have gone up by 224 per cent. and the price of locomotives imported has gone up by more than 230 per cent. and that of some coaches by 300 per cent.—goods rates have increased by only 41·9 per cent. Industry on the Rand has been charging the S.A.R. with inability to meet its requirements. The new Johannesburg Station, improvements at Germiston, extension of the Reef electrifications, and the new yard at Prospect—are four major projects in hand or completed which sufficiently refute such an allegation. Mr. P. O. Sauer, Minister of Transport, has said, of the railway system as a whole, that in spite of the rapid increase in traffic the administration has not only succeeded in keeping pace, but has even exceeded it, and that labour and material shortages prevent the railways from doing everything at the same time.

Replacement of Railway Generating Stations

LOW-FREQUENCY supplies have played their part in the development of d.c. as well as a.c. traction. Power stations generating at low frequencies were built by the railways before efficient rotary-converters for a 50-cycle input were available. When renewals of plant become necessary, it is usual either for such stations to be closed down, power being bought instead from public supplies, or to be rebuilt with 50-cycle generators and linked with the grid system. If rotary-converters have remained in service up to the time of such a step being taken the opportunity may be taken to replace them with rectifiers. A recent scheme of this kind was on the Liverpool-Southport lines of the L.M.R., where the 25-cycle station at Formby was closed after the war, and rotary-converters in 13 substations were replaced by rectifiers of the glass-bulb type, as described in our December 2, 1949, issue. A similar opportunity will arise in the London area when the Southern Region power stations at Durnsford Road and Deptford East are reconstructed by the B.E.A. for generation at 50 cycles on the principles described in our April 20 issue. Recent figures show that the Southern Region has 46 rotary-converter substations of a total of 159, representing an installed capacity of 169,718 kW.

The Essential Value of Work

TO most men, full enjoyment of their lives is impossible without pleasure in the work they are doing—the development and achievement of themselves that will satisfy them that their lives and their labours are of avail. Workers in the transport industry are particularly fortunate in this respect, as all are rendering a direct service to the community, playing a large part in the prosperity and life of the kingdom and of their fellow inhabitants, in a profession worthy of the best skill and highest endeavour. This theme was developed by Mr. C. K. Bird, Chief Regional Officer, Eastern Region, British Railways, in his Presidential Address on October 17 to the Railway Students' Association, London School of Economics & Political Science. He stressed that enthusiasm must be directed by understanding and knowledge. An understanding of one's own job was essential, but one's position in, and important individual and collective affect on, the transport organisation as a whole should be realised. These attributes would be strengthened by a relationship of tolerance and trust in colleagues of every grade.

A Railway Plants its Future Traffic

FOR some years it has become increasingly difficult in the U.S.A. to obtain adequate timber from the States of Washington and Idaho for sawmills and timber product industries. A corresponding fall in traffic has been suffered by the Chicago, Milwaukee, St. Paul & Pacific Railroad serving that area. To ensure against future and more serious falls, the administration of the railway, through a subsidiary timber company, has launched a " tree farm " project believed to be one of the first and largest reforestation schemes undertaken by a railway. The Milwaukee company was fortunate in having bought up considerable areas of land when it was extending westwards to the Pacific Coast, and it still owns 200,000 acres ideal for the growth of Douglas fir. Trees of this species live for 400 and even 600 years and some are 300 ft. high. About 960 acres that had been " logged off " and on which new growth was scanty have now been seeded by a helicopter flying at 45 m.p.h. at a height of 200 ft. and guided by ground staff. In some areas scattered standing trees have been left for natural seeding.

The First Signal Light Repeater

THROUGH the courtesy of Miss B. D. Cramp, Secretary of the School of Transport, Derby, we have been able to see the patent grant, which is in the elaborate style then common, issued in 1866 to her grandfather, J. A. Warwick, who was at one time Telegraph Superintendent of the Midland Railway. In the complete specification, No. 524, the inventor states that his object " is to indicate at any desired place whether the light of a distant semaphore or other railway signal is or is not burning." The drawings show the original heavy form of expansion bar actuating a contact through a lever. Although both closed and open circuit arrangements are mentioned, the illustrations cover the latter, and " light out " is indicated by completing a circuit to a double-coil direct armature movement with indicating flag showing through a window in the instrument case; the armature is arranged to strike a bell to draw attention to the warning. The arrangement would appeal more particularly at that date when economy of power was more essential than it became later. The light working induced needle of Spagnoletti, which became, and still is, so universally used for this kind of work, was not invented for another three years.

Signalling on the Hamburg Elevated

SOME details are given in an article by Herr Karl Stiegert in *Signal und Draht* on the automatic and power signalling installations on the Hamburg Elevated Railway. This line was until 1940 worked exclusively by single-phase a.c. traction at 6,300 volts, 25 cycles, and the signalling included power worked boxes of the type generally met with in Germany, the block working being carried out with the Siemens and Halske magneto-generator apparatus. The change to 1,200 volts d.c. traction began in April, 1940, but the war and later difficulties in obtaining equipment necessitated the retention of earlier methods, and both types of working are still in use over the same sections of route. It was decided, however, to change to automatic signalling of the type in use on the Berlin Stadtbahn, using light signals and train stops, switching-out levers at certain stations, and similar refinements. Herr Stiegert explains the numerous alterations to the old plant occasioned by the introduction of d.c. traction, the steps taken to make the signalling work with both types of trains, and gives some useful circuit diagrams covering the complete operation of the new signals, which are three-aspect, with a special sign known as the "braking arrow" on any signal not at full braking distance from the stop indication in advance.

General-Purpose Locomotives for Western Australia

THE supply of capital equipment for countries in the British Commonwealth has assumed increasing importance during the past few years. Efforts have been made to promote the supply of raw materials from Commonwealth countries to meet the requirements of the United Kingdom, and in return British manufacturers are doing their utmost to supply Commonwealth countries with engineering products, particularly those required to improve and extend transport undertakings. Australia has assumed great importance in view of her resources and potentialities as a supplier of many raw materials, among which are wool, agricultural products, meat, and minerals. The various States in Australia are alive to the need to improve their railway facilities and Western Australia has taken steps to increase its locomotive stock. An important addition has been the acquisition of 60 general-purpose locomotives which are described elsewhere in this issue. The locomotives, built by Beyer, Peacock & Co. Ltd., are of modern design with many features which ensure economical working and maintenance, and are suitable for operating over 1 in 40 grades.

Problems and Progress in Rhodesia

THE traffic of the Rhodesia Railways in tonnage hauled has increased by 311 per cent. in the 23 years since 1928. Most of this increase has come within the last few years, and to cope with it has required the maximum user of locomotives and wagons. The average daily user of locomotives at the end of the war was 121 miles; it is now 146 at least, and the figure has been achieved by what Sir Arthur Griffin, the General Manager, in an address to the Rhodesian National Affairs Association, modestly termed "reasonably good mechanical maintenance." Despite difficulties of recruiting labour and other handicaps, the output of the workshops has increased since 1946-47 by 60 per cent. for locomotives and 70 per cent. for coaches and wagons, and a still higher output is aimed at. If the Rhodesia Railways are to develop they will have to obtain a greater share of the available additional labour, despite the inducements which other industries often offer.

At Bulawayo, over £1,250,000 is being spent on a new locomotive shed which will be among the most modern in Africa, with excellent conditions for the staff and mechanical coal handling performed by the touch of a switch. Slowness in delivery of steel for the roof is delaying its completion. The lines entering Bulawayo are being deviated, and a large new yard is taking shape on the west side of the city. Remodelling of yards at Salisbury, Gwelo, Umtali, and elsewhere is being undertaken, but the work will take time. A most important scheme is the 45-mile doubling between Dett and Wankie, through difficult country, to increase the capacity of a section over which a large tonnage of coal is carried.

The rate of development in Rhodesia has been very great. There are some traffic demands which can be forecast; for the rest, intelligent guesswork is necessary. The railways have not relied only on their own traffic assessments; the Northern and the Southern Rhodesia Governments have each had working parties to study and assess likely traffic demands. Even so, analyses, however careful, are apt to be upset by the unexpected; in August, 1950, the traffic demands on the Umtali-Salisbury section were assessed as 56,800 tons a month in 1952 and 69,500 in 1955, yet the railways have recently had to handle, under extreme pressure, over 70,000 tons a month.

Eighty-eight locomotives are due from British, French, and German builders between the end of this year and 1953; they will bring the total locomotive stock to 353, an 84 per cent. increase on 1946. Some 2,442 wagons and 154 coaches are on order. Further locomotive orders are being examined, and the introduction of diesel-electric locomotives is under consideration in view of water supply difficulties. With the locomotives on order the tractive force will be almost doubled in six years. The introduction of such large numbers of new locomotives brings attendant problems of water, fuel, and staff. The 88 new locomotives due for early delivery will require 373,000,000 gal. of water and 287,000 tons of coal extra a year, increases of some 40 per cent. Eight hundred additional European staff will be needed and housing will have to be found.

New outlets for Rhodesia are a pressing problem. The shortest link which would afford relief to the crowded Umtali-Salisbury section of the Beira route would be a connection with the South African Railways *via* Beitbridge. Its effect would be to divert some overseas imports which at present pass over the Mafeking-Bulawayo line, a large contributor to the revenue of the Rhodesia Railways. The estimated loss of revenue to the Rhodesia Railways has been put at close on £750,000 a year, which would then accrue to the S.A.R. Nevertheless, the need is great, and in 1948 Sir Arthur Griffin advocated a direct line to Lourenço Marques. A reconnaissance having indicated that the route would be fairly easy, the Governments of Northern and Southern Rhodesia appointed a joint working party to examine this and other problems, and its conclusions have been submitted. Proposals are being examined by an Economic Survey Team of U.S.A. experts. The railways are preparing for such a line by ordering materials. If both a new outlet to the east coast and the proposed Sinoia-Kafue cut-off to shorten considerably the route between Salisbury and the north are constructed, further capital requirements of £10,500,000 will be necessary.

The expected estimated expenditure between 1951 and 1956 is £29,000,000—bringing the total capital expenditure to £65,350,000; this figure relates only to development of the existing system and excludes new lines. The loan service on the whole total might amount to more than £2,500,000 a year, which must be met out of revenue; with the increase in low-rated traffic, Sir Arthur Griffin said, the "prospect is none too happy." There has been no general rise in rates and fares since 1939, but in view of the great increase in costs, a revision of the rates structure is under review.

The Inspecting Engineer and Railway Economy

THERE are many organisations whose work contributes to the safety of railway operating, and in this connection the Inspecting Engineer plays an important part, for he must have sufficient technical knowledge and experience to be able to pass judgment on the equipment inspected, and at the same time must show that independence of interest and outlook which is essential if his judgment is to be fair and impartial. These points were emphasised by Mr. Julian S. Tritton in his Presidential address to the Institution of Locomotive Engineers on October 17. The subject he chose—"The Inspecting Engineer's Contribution to Railway Economy"—is one on which his many

years as a Consulting Engineer well qualifies him to speak. This need for independence of commercial interest, stated Mr. Tritton, was sometimes not fully appreciated, but it applied just as much to the Inspecting Engineer as it did to the Consulting Engineer, and his primary function was to see fair play between the conflicting interests of buyer and seller. One of the most frequent difficulties the Inspecting Engineer experienced was that of working to a loose specification.

It was sometimes not realised that the Inspecting Engineer's functions were the same as those of the contractor, namely, to get the work through the shops in accordance with the specification, and a haphazard or badly organised system of inspection could involve the works in serious delays in production. Delay in delivery caused by rejection was an ever present bogey with which the Inspecting Engineer was threatened, but, however genuine the threat, he must not be intimidated. Once the Inspecting Engineer has established a reputation for firmness, defective material is quickly replaced, and Mr. Tritton remarked that, from the point of view of the purchaser of locomotives and rolling stock, especially on behalf of an overseas railway, inspection offered many advantages. The Operating Department wanted insurance against breakdown in service; the Legal Department required insurance against accidents and claims which might arise from faulty materials or workmanship; the Purchasing Department required insurance against the supply of unsuitable stores or spare parts; and the Accounts Department wanted certificates that the railway was getting what is was paying for.

A defective purchase by British Railways might have serious results, but the results were far more serious to an overseas railway administration, some thousands of miles away, where, with locomotives, rolling stock, or plant out of service, time and cost of replacement was far greater. The old argument that a tenderer put 10 per cent. on to his price if the contract was subject to inspection was usually discredited. If taken seriously, it implied that the contractor would be working to finer limits with a higher percentage of rejects, and consequently the purchaser received better value. It was his experience that efficient inspection by a competent authority was generally welcomed by contractors. Inspection saved money by showing up defects or mistakes at the earliest possible point and the experienced Inspecting Engineer could give technical advice and raise the standard of workmanship. Also, the moral effect of inspection was of assistance to the management in getting production, and, a competent inspection authority acts as a buffer between a contractor and an exacting purchaser.

Referring to the cost of inspection, the President said that the most usual form of payment for inspection service was based on a percentage basis of the contract value, a convenient form for accountancy purposes. The purchaser was able to budget beforehand for the cost, and it enabled the inspecting authority to submit his account immediately on completion of the work. The percentage basis of payment was widely adopted by large purchasing organisations where the value of contracts to be inspected is large and the work varied. It enabled the inspecting firm to quote favourable rates when there was a reasonable proportion of bulk inspection, to offset the high cost of inspection of special stores. These charges would vary, depending on the volume of work, whether carried out by an individual or firm, the location of the work and its geographical "spread."

For a large volume of work steadiness in the inspection load was a prime factor in keeping down costs. An organisation set up to deal with the inspection of up to £30 million a year obviously would build up a staff of reliable and experienced Inspecting Engineers. Such a staff could not be found at short notice and its services would be retained during slack periods as the mainstay of any firm with a reputation to maintain. Should the volume of inspection fall off, the firm could not immediately reduce its staff, and therefore the actual cost for the same standard of inspection was increased. Where payment was made on a percentage basis there was a good case for adopting a sliding scale to cover fluctuations of inspection loading.

The Inspecting Engineer was not concerned with cost of the article inspected. His duty was to see that the specification was complied with. In practice, he used his judgment in regard to what visits he made, and what tests he took, but this judgment should not be hampered by the feeling that a fixed fee or percentage rate would not cover the cost of additional visits to see that some minor fault, during his last inspection, had been rectified. From the professional point of view the time basis was the correct method of charging for inspection work. In practice it gave the Inspecting Engineer the free hand he should have in carrying out his duties conscientiously.

Recent Trends in U.S.A. Railway Results

AMERICA is a country of quick transitions. During the first six months of 1951 statistical and financial returns for U.S.A. Class I railways put those for the first half of 1950 in the shade. Operating revenues were 19·2 per cent. higher, and, despite an 18·5 per cent. rise in expenses, the net railway operating income of $388 million was 12 per cent. above 1950. July brought a sudden change in these trends. An increase of $44 million in revenues (5·8 per cent.) was wiped out by an increase of $104 million (18·1 per cent.) in expenses. The operating ratio jumped from 75 per cent. in July, 1950, to 83·7 per cent. For the first seven months of this year, net railway operating income shrank to $430 million—0·3 per cent. less than the railways earned in the same period of 1950.

Some of the causes of the July upset were abnormal. Unprecedented floods in Middle West territory put several busy sections of line out of action just when the Spring wheat crop of the north-west was ready to move, and extensive damage was done to permanent way, bridges, and rolling stock. Costs of diverting traffic to alternative routes were also high. For once the Santa Fe was in such a plight that its July operating ratio was 100·5 per cent. Railways in the South Western Region, based on Kansas City and St. Louis, were hard hit both by floodwater and a partial failure of the south-west grain harvest. Perhaps the Missouri-Kansas-Texas lines suffered most. Ordinarily, the "Katy" operates at a ratio between 70 and 75 per cent., but the July figure was 105·8.

During the seven months to July, the South Western Region railways lost 10·8 per cent. of their 1950 net railway operating income. On the other hand the North Western Region had an increase of no less than 74·4 per cent. The gain was no doubt due to the Korean war which influences traffic to the Pacific coast. Lacking a similar stimulus, the net operating income of the eastern railways was reduced by 7 per cent. This has roused the Pennsylvania to denounce the 7·5 per cent. increase in freight rates recently authorised by the Interstate Commerce Commission as meeting little more than half its additional operating expenses. The plea is that since 1939 the wage bill has increased by 140 per cent., and the cost of fuel and supplies 130 per cent., while freight rates are only 67·6 per cent. higher.

Possibly the Commission expected freight traffic to expand further than it has done. In July, net ton-miles per serviceable wagon per day, worked by all railways, were 955, the lowest number for any month this year. Since July, wagon loadings have ceased to exceed the 1950 level. For 32 weeks to August 11 loadings were up 8·6 per cent. For 37 weeks to September 15 the excess dropped to rather less than 7 per cent. The changed trend was not due to scarcity of wagons. On September 1 the railways had 1,722,000 wagons fit to load—34,000 more than were available 12 months before. In August, 6,340 new wagons were put into service, and the number of wagons awaiting repairs was reduced to 5·3 per cent. of the total stock. Average daily net shortages reported recently have not been formidable.

These current developments are strange in a year of great business activity, when coal output in the first eight months was 25 million tons up, and steel production was a record. Road competition may account in part for a decrease of 43,670 (3·7 per cent.) in the number of refrigera-

tor wagons loaded in the 35 weeks to September 1. Diversion to road haulage also explains in some measure why the railways cannot hold less-than-wagon-load traffic. About 20 years ago one in every four loaded wagons carried "smalls"; today the ratio has fallen to one in ten despite systematic efforts to improve rail transits. The Railway Express Agency, which performs work analogous to the parcels services of British Railways, is equally on the down grade. Its 1946 volume of 231 million consignments has declined by 65 per cent. to 80 million, and its staff of 85,000 has been reduced by 47 per cent. to 45,000. Its business has been subject to unfair competition with the Government parcels post service which handles bulky packages at unremunerative charges and has incurred a deficit of $350 million in the past five years.

Unless the situation changes for the better in the autumn the U.S.A. railways will be in some danger of becoming before long merely carriers of goods passing in full wagon loads over long distances. It is unthinkable that road, water, and air transport can supplant the railways for the inland movement of commodities in bulk. What these rival carriers are doing, with the aid of Federal and State subsidies, is to cut deeply into the net earnings which the railways need to maintain their properties and finance improvements. So far the railways have managed to pay their way with a struggle. The question is how long they can continue as a private industry if the Government neglects to modify its transport policy so as to treat all public carrying agencies on equal terms.

British Transport Commission Traffic Receipts

THE passenger receipts of British Railways for Period 10, to October 7, at £8,452,000 were made above the corresponding figure (£8,010,000) for last year; the main causes seem to be increased cheap-fare facilities and the Festival of Britain; there is a seasonable drop from Period 9 (£10,471,000). London Transport receipts for Period 10 were slightly above those for the preceding period (£4,726,000), for which the Festival is the only obvious cause; in comparison with 1950, account must be taken of the London Passenger Charges Scheme, which came into force on October 1, 1950, and therefore affected only one week of Period 10 last year, so that the effect of Festival traffic is the more marked.

—	Four weeks to October 7		Incr. or decr.	Aggregate for 40 weeks		Incr. or decr.
	1951	1950		1951	1950	
British Railways—	£000	£000		£000	£000	
Passengers	8,452	8,010	+ 442	85,739	85,578	+ 161
Parcels, etc., by passenger train	2,652	2,551	+ 101	25,296	23,234	+ 2,062
Merchandise & livestock	8,175	7,373	+ 802	74,810	66,256	+ 8,554
Minerals	2,905	2,553	+ 352	27,266	24,372	+ 2,894
Coal & coke	7,460	6,621	+ 839	68,839	58,247	+ 10,592
	29,644	27,108	+ 2,536	281,950	257,687	+ 24,263
Road Passenger Transport: Provincial & Scottish—						
Buses, coaches & trolleybuses	3,683	3,157	+ 526	34,083	30,182	+ 3,901
London Transport—						
Railways	1,260	1,149	+ 111	12,353	10,988	+ 1,365
Buses & coaches	2,731	2,292	+ 439	25,884	23,735	+ 2,149
Trolleybuses & trams	754	805	− 51	7,493	8,128	− 635
	4,745	4,246	+ 499	45,730	42,851	+ *2,879
Inland Waterways—						
Tolls	70	63	+ 7	665	559	+ 106
Freight charges, etc.	70	66	+ 4	699	654	+ 45
	140	129	+ 11	1,364	1,213	+ 151
Total	38,212	34,640	+ 3,572	363,127	331,933	+ 31,194

The increases in railway goods receipts over the preceding period are partly seasonable, and partly due to increased mine and industrial output resulting from other causes. In the light of the 10 per cent. rise in freight charges last April, the small increase in merchandise and livestock receipts over Period 10 of 1950 is disappointing, and taken in conjunction with the drop in parcels receipts compared with Period 9 and their small rise against Period 10 of last year, seems to indicate a loss of more highly rated traffic to the roads.

Coal traffic receipts for Period 10 were some 13 per cent. up on last year's. This compares with an increase of 16 per cent. over 1950 for the preceding period. Increased coal output may be the chief reason for this, though a change in the direction of consignments may have contributed, which can be ascertained in due course when the detailed statistics appear. Mineral receipts were 14 per cent. up on Period 10 of 1950, compared with a rise over 1950 of 11 per cent. for Period 9. Inland waterways receipts, at £140,000, show a drop from the preceding period, and are the only non-passenger item besides railway parcels traffic to do so; both tolls and freights declined.

The aggregate of B.T.C. traffic receipts shown in the advance figures (excluding that is, road haulage and some minor items) for the 40 weeks of 1951 to the end of Period 10 was £363,127,000, compared with £331,933,000 for the first 40 weeks of 1950. The main causes of the increase over last year were the freight rate increases of April last, increased industrial production, additional passenger fare facilities, and the Festival of Britain.

PERCENTAGE VARIATION 1951 COMPARED WITH 1950

	4 weeks to October 7	40 weeks to October 7
British Railways—		
Passengers	+ 5·5	+ 0·18
Parcels	+ 3·9	+ 8·8
Merchandise & livestock	+10·8	+12·9
Minerals	+13·7	+11·8
Coal & coke	+12·6	+18·1
Total	+ 9·3	+ 9·4
Road Passenger Transport	+16·6	+12·9
London Transport—		
Railways	+ 9·6	+12·4
Buses & coaches	+19·1	+ 9·0
Trolleybuses & trams	− 6·3	− 7·8
Total	+11·7	+ 6·7
Inland Waterways	+ 8·5	+12·4
Aggregate	+10·3	+ 9·3

Burma Railways

THE administration report of the Burma Railway Board for the year 1949-50 graphically describes the difficulties encountered in rehabilitation, maintenance, and operation of many sections of line successively recovered by force of arms from the insurgents, and of others continuously held by the Government but isolated from Rangoon and all normal sources of supply. In the early part of 1949 the railways were the main objective of rebel attacks, and Rangoon was cut off from the rest of the system. There were 627 route-miles of line that could not be operated by the administration because of insurgent activities, and much rolling stock was locked up on them. A rapid and steady improvement in the military situation reduced this figure to 368 miles by the end of the year under review; there still remained 287 miles of war-damaged line—out of the total route-mileage in the country of 1,771—to be rehabilitated.

The main line from Rangoon to Mandalay, 386 miles, had been open only to Pegu when the year opened, but by its end only 29 miles from Pyinmana (mile 225) to Tatkon (mile 254) were inoperative, this section passing through the Communist rebel stronghold. This gap still isolated from Rangoon the 132 miles, Tatkon to Mandalay; the 337 miles onwards to Myitkyina, in the far north; the Mandalay-Lashio (Northern Shan States) line 178 miles; the Southern Shan States line, 98 miles; and several other branches. No coal or heavy materials were available on any of these lines, and all were worked with wood fuel, including the long 1 in 25 sections on the hill lines. Alternatively, the carriage and wagon shops at Myitnge near

Mandalay were cut off from Rangoon and the southern half of the system.

Full audited accounts were not available when the report was drafted, but the following are some of the traffic statistics for 1949-50 compared with those for 1948-49:—

	1948–49	1949–50
	(Millions)	
Passenger journeys	4·4*	6·6
Passenger miles	74·1*	106·7
Goods tonnage carried	0·8*	0·8
Goods ton-miles		
	(Rs. millions)	
Passenger revenue	3·3*	5·0
Goods traffic revenue	10·4*	11·1†
Gross traffic receipts	15·8*	19·4†

* Revised figures † Provisional figures

Because so many coaches were in insurgent hands, American boxcars had to be used for passenger traffic on branch lines. After the world war, 200 steel body-shells and 320 bogie underframes were ordered, and had been received in Rangoon before the end of the year. As they could not be sent to Myitnge, arrangements were made for 40 bodies to be erected departmentally at the Rangoon carriage sheds, and a further 160 by contract at the wagon sheds at Malagon Marshalling Yard, outside Rangoon.

To reduce working costs, eight stations in the Rangoon suburban area were converted to halts; two special coaches, connected by a corridor and with distinctive markings for ready recognition, were attached to each local rake for the use of passengers entraining at these halts, so that tickets could be issued to them on board. As from October 1, 1949, both rates and fares were raised substantially to meet rising costs. During the year there were no fewer than 282 instances of sabotage to track, bridges, and other installations by the rebels, as compared with 165 in 1948-49. Some bridges were repaired, again blown, and repaired a second time.

The major engineering works during the year under review were the remodelling of Rangoon, Pegu, and Mandalay yards, and the reconstruction of bridges. Out of 465 bridges to be repaired, 249 had been completed. In spite of shortage of materials due to cut communications, good progress was made in the rebuilding of the famous Gokteik Viaduct on the line to Lashio.

[The work was subsequently completed, and the opening date was August 15, 1951.]

In connection with the remodelling at Rangoon, a 143-lever power frame and illuminated diagram were installed. Automatic colour-light signalling was also brought into use in the suburban area. On the main line, three-aspect upper quadrant semaphore signalling and double-wire working of points were being installed.

The engine-power situation was satisfactory and 20 "YD" locomotives were received during the year, bringing the total stock up to 313. Of these 27 are Garratts, 151 are classed as heavy, 59 as medium, and 76 light. The work of erecting new locomotive shops at Insein and the move from the old to the new shops progressed satisfactorily. Myitnge carriage and wagon shops were reopened in May, 1949; both shops had sustained damage by the rebels.

French Signalling Progress

IT is always stimulating to study progress in other countries in that branch of engineering with which one is specially concerned, and it was natural therefore that the paper presented to the Institution of Railway Signal Engineers by Monsieur J. G. Walter, Chief Signal Engineer, French National Railways, on October 3, should command the closest attention. British railwaymen have been accustomed to find signalling on French lines a little difficult to understand, partly, perhaps, because the signals themselves are in general so different from those they are used to. While the semaphore comparatively early became the running signal for all purposes here, the older disc or target type of signal giving place to it, this was not so in France. There at the present time, except where the light signal has superseded them, the great majority of the signals remain of the target pattern, semaphore arms being used only either as block section signals, or in fishtail form as direction indicators at junctions, their aspects being additional to those called for by ordinary interlocking requirements, to meet which the disc form of signal is employed.

At first, the separate railway managements which existed for many years had their own signals, but in 1885 the State imposed a *Code des Signaux*, derived principally from the practice then obtaining on the P.L.M. line, and this resulted in a fair measure of uniformity, although certain divergences crept in again later. These regulations were superseded by others between the two wars, when the white light for "line clear" was abandoned. By day, however, the old principle of causing a signal to disappear when "off"—by turning it on edge—was retained, largely from necessity. The variety of forms of signal, the result of a desire to convey several shades of meaning very distinctly, also has made it difficult for anyone unacquainted with the principles involved to understand their application. In early days also the different companies had their own methods of block working and types of interlocking frames and associated fittings—still to be met with—but steps are being taken under S.N.C.F. management to work out standard designs and methods and apply them as opportunity and funds permit. It may be mentioned that the one-wire block telegraph of Edward Tyer was applied throughout the P.L.M. main route to Marseilles as early as 1865. The lines in Alsace-Lorraine, which were under German management from 1871 to 1918, a period of great expansion, stand in a class apart, and it is unlikely that any very noticeable alteration will be effected for a considerable time. Right-hand running continues there.

Although the designs of apparatus and methods of working were often so different from those to which we were accustomed, that did not mean that they were in any way inferior to them. On the contrary, much thought and considerable ingenuity were bestowed by French engineers on the construction of such equipment. An employee of the former Ouest Company, Vignier, invented and made an interlocking apparatus a little before, and quite independently of, Saxby in England. But he took out no patent and this may account for his name being little known outside his own country. Gradually, both interlocking and block signalling came to be applied generally, largely on the initiative of the companies themselves, but to some extent under legislative action, which paralleled the steps taken in Great Britain to safeguard the interests of the travelling public. In the application of track circuiting and the development of power interlocking the French railways have played a prominent part. Several main routes, such as Paris-Belfort, Paris-Avricourt, Paris-Marseilles, were almost completely track circuited some years ago, either to afford additional security to the manual block working, or allow of automatic signalling, at first using the ordinary type signals, electrically operated. Cab signal devices also appeared many years ago in regular service over the former Nord lines and later found general adoption. In power working we find some of the earliest successful attempts to operate points electrically being made by Nord engineers as long ago as 1887.

Just after the turn of the century, the idea of route setting became ably developed in practical form by such engineers as Bleynie, Cossmann, and Descubes, and found wide extension, individual lever power working being but little used at any time, and this formed the basis on which the developments of recent years, described in Monsieur Walter's paper, have been effected with such excellent results. The technical details of these modern all-relay installations, which represent a high standard in signal engineering, form a direct continuation of the work so well conceived and carried out by those engineers who—to use the words of one of them—"boldly started out along novel lines." In the extension of centralised traffic control, remote control, the general application of electric lighting to mechanical signals, the improvement of telecommunications and marshalling yard operation, the last named typified in the remarkable Lévi ball-type automatic point control apparatus, excellent work has been accomplished, with much of which Monsieur Walter has been directly associated. The contributions made by the signalling industry in France towards these achievements, and which began many years ago, have been of the highest order.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Transport Integration

October 17

SIR,—Mr. Frederick Smith erects a pleasing-looking edifice on the allegation of ignorance on the part of the writer of the article in your August 31 issue, but, quite early, he betrays his own ignorance.

He says "Costs per vehicle can be determined accurately for a given journey." They cannot. They depend on the number of journeys the vehicle runs per day, week, month, or year or, better still, in its life, and on the number of miles the vehicle runs on each of its journeys. They depend, in fact, on many factors which can be known accurately only in retrospect.

As a consequence, the remainder of Mr. Smith's letter, while an amusing exercise in rhetoric, is of little real value.

Yours faithfully,

A. RALPH WILSON

Kingsgate, North Park, Gerrards Cross

Passenger Charges Schemes

October 16

SIR,—The British Transport Commission adheres to its policy of equalising road and rail fares, particularly in the London area. Thus the first of the explanatory statements at present lodged by the Commission with the Transport Tribunal describes the 1950 London Area (Interim) Charges Scheme as having "successfully established common standards of charge on different forms of transport for over 98 per cent. of the traffic in the London area as a whole." Such "assimilation" is clearly regarded by the B.T.C. as an end in itself; this much was early apparent from Mr. Lionel Heald's opening remarks before the Transport Tribunal on the Interim Scheme in May, 1950.

The price mechanism is not yet obsolete, for no better means has been found of ensuring that consumers of goods and services are influenced in their choice not only by their own preferences but also by the relative costs of production, in terms of scarce resources. But the B.T.C. apparently desires that the passenger should consider only his own convenience when weighing road travel against rail, and must therefore itself foot the bill (until the next general fares increase) should the passenger choose the form of service which the Commission finds more costly to provide.

It cannot be supposed that cost differences do not exist. For instance, from the B.T.C. 1950 report the following comparison of London Transport working expenses can be made: £1 per 259 passenger miles by rail as opposed to £1 per 215 passenger miles by road. To equate costs would mean lowering the standard of the more costly service regardless of the fact that many passengers value the service and would be willing to pay for it. The present situation is one in which no special effort is made to equate costs per passenger mile and no steps are to be taken to influence traffic towards the service which could convey it most cheaply.

The principle which should be followed seems clear, although the practical application is more difficult. Given the cost curves of alternative road and rail services between two points, the minimum cost of conveying any particular number of passengers between these points can be ascertained, together with the distribution between the two forms which will be necessary to achieve this optimum result. If the demand curve for passenger miles at various general fares levels is also known, it will be possible to ascertain the equilibrium fares level (at which demand and supply are equal), the amount of travel undertaken, and the proper distribution of the traffic—from the transport authority's point of view. The object must then be to influence passenger preferences, by appropriate fares differentials, towards achieving this desired distribution (it is necessary, diagrammatically, to illustrate this, to use indifference curves, representing the terms on which passengers can be influenced to transfer from one form of transport to another).

The inescapable conclusion is found in black and white in the B.T.C's "Draft Outline of Principles proposed to be embodied in a Charges Scheme for Merchandise Traffic," in which it is stated that "The charges by the respective forms of transport may, however, differ, but should be so framed as to encourage traffic towards the service which can convey it most conveniently and economically." There has been no whisper of this in the passenger charges schemes to date and, so far as I know, no public objection to the contradictory principle embodied in these passenger schemes.

I should be interested to learn the reasons underlying the present "assimilation" policy.

Yours faithfully,

C. MCK. CRAY

35, West Lodge Avenue, London, W.3

Publications Received

190 in Persia: Some Notes on a Wartime Operation. By Michael Robbins. 41 pp. 10½ in. × 8½ in., paper cover. Illustrated. Copies obtainable from the author, 64A, Longridge Road, London, S.W.5; price 5s.—This booklet describes the railway work performed by 190 Railway Operating Company, R.E., in Persia between December, 1941, and January, 1943. It is an official record now reproduced for publication. Though some of the ground covered by this narrative was the subject of an article in our February 2 and 16, 1945, issues, there are many more details now revealed of considerable interest. As the author explains, full particulars of accidents and of the organisation are included to enable others to learn from those misfortunes and errors. Though British forces were responsible for the southern half of the Trans-Persian Railway for only 15 months, they laid a sound foundation on which the American Army subsequently built up an organisation of greatly increased capacity.

The London Tramcar, 1861-1951. By R. W. Kidner, South Godstone, Surrey. The Oakwood Press, Tanglewood. 7¼ in. × 5 in. 46 pp. Illustrated. Paper covers. 5s. 6d.—This little volume obviously represents the fruits of much investigation. It is not a study of the development of the tramway in London but of the tramcar itself from the horse-tram onwards, through experiments with steam, compressed air, cable trams and storage battery cars, to the electric tram, which made its London debut just fifty years ago and is now fast disappearing from the metropolitan scene. Mention is made of early internal-combustion trams including one put into service in 1893 using a Weymann 12½-h.p. engine weighing 4½ tons. The author's preface is well done and he has included some particularly interesting illustrations.

Mechanical Properties of Nickel Alloy Steels.—In this new publication of the Mond Nickel Co. Ltd. steels are divided into two main groups and cover direct-hardening and case-hardening. Specification details, including chemical composition, heat-treatment, and mechanical properties, are given for each steel, together with representative test results which show the effect of mass. Tempering diagrams are included for the direct-hardening steels. The data given and the method of presentation make this a very useful reference book.

THE SCRAP HEAP

A Stronghold of Tradition

You state that 30 years ago it was a tradition that train guards should wear a flower and that it was always a rose if they could get one. This tradition is still alive on the Princes Risborough to Watlington line. I have never seen the guard of its one train without either a rose or a carnation, and he tells me he has always worn a flower without knowing why.—*From a letter to "The Evening News."*

Oxford Trains

Oxford used to be a frontier station, and the pause at the gasworks recalls the days when the driver stopped to tighten his safety belt before plunging on to the track of the Oxford, Worcester & Wolverhampton Railway. At Cambridge the delay arises from the need to decide whose turn it is to play with the platform at Cambridge Station. This also accounts for the luxuriant growth of dandelions round the signalbox. Their ripe heads enable the signalman to make an entirely impartial choice on the principle of "She loves me, she loves me not."—*From a letter to "The Times."*

East African Exhibition

The East African Railways & Harbours had a stand at the recent Show at Iringa, in the Southern Highlands of Tanganyika and the headquarters of the administration's road services in the area. Iringa is in the centre of an agricultural district with some European settlement, and may ultimately be served by the projected railway connection between the Northern Rhodesian and East African systems. The accompanying illustration shows a native "ngoma" (dance) being performed in front of the E.A.R. stand of modern design.

Troubled Transport

"The nationalised British Railways are obviously heading for the rocks whilst under free enterprise British shipping is firmly on the rails."—Extract of report of speech by Lord Mancroft.

It is to be hoped that our civil aircraft are not dragging their anchors.—*From "An Editorial Diary" in "The Glasgow Herald."*

Golden Opportunity

"'We don't get much chance to do that sort of thing at home," Princess Elizabeth is reported to have said in reference to the fact that her husband had gone to the front of the royal train in order to drive the locomotive. It is, alas, a lost chance which most of us share with Royalty . . . We noticed the other day in the junior section of the household library an illustrated and much-thumbed volume called "The Princess and the Engine Driver." Prince Philip seems adept at making fairy tales come true.—*From "A Scotsman's Log" in "The Scotsman."*

South Africa Buys British Models

One of the largest orders ever placed for model transport equipment is now being executed by manufacturer members of the Model Engineering Trade Association on behalf of the South African Government. The models are for the Van Riebeeck Tercentenary Exhibition in Cape Town next year. It will include transport as used in South Africa over a period of 300 years. In the railway section there will be a 4-mm. scale scenic railway, embodying a large marshalling yard, in which will run models of the "Blue Train" and "Orange" Express, a Natal mail train, and a typical coal train. These will need five steam outline locomotives, six electric locomotives, 44 passenger vehicles, and 37 freight vehicles.

On a scale 4 ft. 8½ in. gauge there will be representative models of the first Cape Railway train, and of the original Natal Railway locomotive *Natal* with wagon and carriage. There will also be five complete trains representing the Cape Railway and six Natal.

Africans dancing before the stand of the East African Railways & Harbours at the Iringa Show, Tanganyika

Much Ado . . .

(*South Bank Exhibition engine "William Shakespeare" hauls "Golden Arrow"*

Sweet Will, whenas I gazed with goggling eyes
On you, the apex of our enterprise,
Loftily throned, according to tradition,
Within the late lamented Exhibition.
I must admit I'd always visualised
Your active service would be signalised
In rather a north-westerly direction,
Having, I thought, some innate predilection
For hastening to your immemorial haven,
Presumed till now to be Somewhere-on-Avon.

But, having long enjoyed the adulation
Of multitudes, whose fervid acclamation
Has centred lately around Waterloo
(At the presumed expense of London's Zoo),
You have acquired, unwittingly, maybe,
Elegance, poise, and sleek *diplomacy*,
Which, giving pause to envious debate, is
Bordering on ambassadorial status.

Old Falstaff's gang may think you've wandered far
From the old "Mermaid" to "Trianon Bar,"
But, I confess, it thrills me to the marrow
To think that you now go by "Golden Arrow";
Your rhythmic cadences will so entrance
The hopeful traveller to *La belle France*
That dread foreboding of cross-Channel ills
Will vanish in a brace of Mothersill's.

Editor's Note:
But, surely, Bill, it was not your intent
To give the ghost up thus, half-way through Kent!
Do we infer ('tis only a suggestion)
"To be or not to be" is *still* the question?

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Link with Lourenço Marques

The Minister of Transport (Mr. G. A. Davenport) has announced that the proposed new rail link with Lourenço Marques *via* Pafuri may be "actively under construction" next year.

Recent petrol supply difficulties have strengthened opinion in favour of the line. Route survey is almost complete, and orders have been accepted for materials. The Portuguese are planning to bridge the Limpopo river at Guija.

Sinoia-Kafue Line

The route survey for the Sinoia-Kafue cut-off is progressing but rains in the Zambesi valley will hold up the work for a few months.

Umtali-Salisbury Traffic

Passenger service between Umtali and Salisbury is being restricted to enable additional goods vehicles to be moved to cope with increased import traffic *via* Beira. There has been congestion at Umtali recently.

SOUTH AFRICA

Pay Increases

Pay increases for European railwaymen, as recently announced by the Minister of Transport, will cost an additional £6,000,000 a year, of which £1,200,000 will go towards improved conditions for the 18,000 artisans who recently carried out a "go slow" strike. For artisans, all operatives, and servants in allied grades the increase in pay will be 5d. an hour retrospective from July 1. Improved leave privileges have also been announced for railway artisans and other European non-salaried servants with more than five years' service.

The improvements were recommended by a conciliation board appointed by the Minister and were accepted by the executive committee of the Railway Artisan Staff Association and the Federal Consultative Committee, representing all railway staff associations. Leave scales will be reclassified so that artisans, operatives, and servants in the allied grades who have completed more than five years service, and up to ten years, will receive three additional days' leave a year; servants with over ten years' and up to twenty years' service will have four extra days' leave, and those with over twenty years' service will have an extra two days.

Salaried staff receiving salaries up to £840 a year will be granted an increase of £36 a year. Other daily and monthly paid servants will receive an increase of 2s. 3d. a day or the monthly equivalent. Six groups of railway employees negotiated for a general increase in pay. A seventh group, the railway police, will also benefit. The conciliation board also recommended increases in the wages of apprentices.

The departmental committee will deal in its second report with the consolidation of a part of the cost of living allowance with basic, or alternatively, allowing members of the pension funds to contribute to such funds on the basis of basic pay plus a percentage of the cost of living allowance. Many of the representations made by the staff in regard to general conditions of service require careful consideration and these representations will be dealt with in the committee's third and last report.

VICTORIA

Railways Exhibition

British engineering products received an excellent advertisement recently when the railways held an exhibition of new rolling stock at Spencer Street Station, Melbourne. The display was such a success that the Railway Commissioners extended it from three to four days, and revived it for four days during the Royal Agricultural Society's Show week in September.

The showpiece of the exhibition was a Class "R" locomotive, built by the North British Locomotive Co. Ltd., to the design of Victorian Railways, and part of an order of 70. Other exhibits included one of the ten diesel-electric shunting locomotives built by the English Electric Co. Ltd., a 280-h.p. diesel railcar with power units by Walker Bros. (Wigan) Ltd., twinette and roomettes in service on the "Overland," and an experimental electric suburban coach.

NEW ZEALAND

Railwaymen from Britain

Because of more resignations the number of employees has decreased by 1,538. The Department has tried all means of recruiting staff and is now considering recruiting during the next few years from Great Britain youths of 16 to 21 years of age, probably 200 at first, and indenturing them.

Rimutaka Tunnelling Progress

At each end of the Rimutaka tunnel workings 100 men are engaged, and at Mangaroa (the Wellington portal) the ranges have been pierced to 1,500 ft. Three shifts a day three days a week is the rate to be maintained until a single track joins the two portals. At the Featherston end the tunnellers are drilling 400 ft. into straight rock.

Coal Shortage

The coal situation is causing the railways concern. The yearly production of 2,600,000 tons is far from sufficient. Last year the railways imported 44,260 tons of coal costing £252,000 and fuel oil costing £840,000. This imported fuel cost the railways £390,000 more than if they had fuelled locomotives exclusively with domestic coal. If the same quantity of coal was imported at prevailing prices the extra charge during the coming year would be £640,000. The latest coal shipment from India was landed at a cost of £12 a ton and no more can be imported at that price.

CANADA

First Opposed-Piston Diesels

Although the use of diesel-electric locomotives with opposed-piston engines of the Fairbanks-Morse type is now common in the U.S.A., a twin-unit 3,200 b.h.p. road locomotive of this type, completed recently at the Kingston works of the Canadian Locomotive Co. Ltd., is the first such engine to run in Canada. It has been built to the standard Fairbanks-Morse "Consolidation Line" designs, in which the same standard chassis is used for 1,600, 2,000, and 2,400 b.h.p. locomotives, with 8-, 10- and 12-cylinder engines respectively, and almost all parts are interchangeable. The first demonstration model, named *City of Kingston*, is to undergo preliminary tests over the difficult section of the Canadian Pacific main line between Calgary and Revelstoke, which includes the 5,335-ft. summit at the Great Divide, and long approach gradients up to 1 in 45.

UNITED STATES

Locomotives on Order

Class I railways had 1,557 new locomotives on order on September 1, according to the Association of American Railroads. On the same day last year there were 1,388 on order. Of the 1951 total 1,545 were diesel locomotives; the remainder were ten steam and two electric locomotives.

In the first eight months of this year 1,647 locomotives entered service; 1,633 were diesel, twelve steam and two electric. In August, Class I railways put into service only 164 new locomotives, all diesel except two steam locomotives.

BRAZIL

Railway Financial Situation

The September issue of the semi-official *Conjuntura Economica* carries an analysis of profits and losses in transport undertakings last year. In nine railways whose balance sheets were examined, the overall deficit amounted to £3,580,000 in 1950. The contrast between the results of the two lines worked directly by the Government is striking. On the Central of Brazil Railway, with capital plus reserves equiva-

lent to £56,540,000, losses exceeded profits last year by £5,480,000. The Santos-Jundiai (former British San Paulo Railway) on the other hand, with capital plus reserves of £17,300,000, had a surplus on the year's working of £680,000 in 1950 and £238,000 in 1949.

The contrast is equally striking between two lines worked under concession. The Companhia Paulista de Estradas de Ferro, with capital plus reserves of £19,320,000, made a profit of £1,260,000 in 1950, but in the Companhia Mogiana (capital plus reserves, £3,940,000) receipts and expenditure were almost equally balanced. The Paulista was the only railway to distribute a dividend last year; the amount distributed represented 8 per cent. on capital.

Relative traffic densities are mainly responsible for the widely differing financial results. The Paulista and the Santos-Jundiai have traffic densities in the order of 500 and 1,000 tons km. per km., respectively; the average density for all other lines is about 150.

Northern Parana Traffic

According to statistics compiled by the Ministry of Transport, 8,644,117 bags of cereals were awaiting clearance in producing and distributing centres of Northern Parana between August 24 and September 4. Some 7,400 wagons are required to clear these stocks and 20 days are needed for the round trip from Londrina to Sao Paulo, 444 miles. To hasten distribution President Vargas has instructed the National Department of Railways and the Central of Brazil Railway to buy 130 wagons and 120 locomotives.

ARGENTINA

Pension Scheme Reformed

Congress has approved important modifications in the conditions governing all pensions and superannuations, including those for railwaymen. The principal differences are an increase from 8 per cent. to 10 per cent. in the contributions of railwaymen still in service; an increase from 12 per cent. to 14 per cent. in the contributions of the State as employer; a yearly bonus of one month's pension, payable in December; increased percentages for the calculation of new pensions on the basis of the average salary over a period of five years, the years to be chosen by the employee.

Improved Suburban Services

A comprehensive plan for the total reorganisation of the suburban services of the General Urquiza Railway between Buenos Aires and Pereyra, Campo de Mayo, and San Martín will be put into effect as soon as possible. All the tracks over which these services run will be relaid with heavier rails to allow for faster and heavier trains. Automatic signalling of the latest type will be introduced and the existing rolling stock will be completely replaced by new units to be purchased abroad. A start will also be made with the rebuilding of the San Martín and Pereyra stations and the Federico Lacroze terminus.

Unification of Stations

The former Central Córdoba station in San Francisco is being demolished and the tracks lifted, permitting of the abolition of seven level crossings. All passenger and goods services are being dealt with at the former Santa Fe station. In Santa Fe, train services are now concentrated at the former State Railways station, the Santa Fe station having been closed to all traffic and the tracks lifted, with the exception of one giving access to the workshops which are still in use.

Tour by Hospital Train

A completely equipped hospital train run under the auspices of the Fundación Ayuda Social Eva Perón (Eva Perón Social Welfare Foundation) has recently completed an extended visit to towns and villages on the General Belgrano Railway in the northern provinces.

Locally-Built Electric Motor Coach

The first electric motor coach to be entirely constructed in the country has been completed at the Evita (formerly Victoria) Works of the General Mitre Railway, under the supervision of Mr. Claudio J. Trivi, Chief of the Electrical Department.

The coach, of the two-compartment type with double doors in the centre and single doors at each end, is 19·88 metres long overall, weighs 53 tons, has an interior floor space of 46·6 sq. metres and seats 72 passengers. There are two 260-h.p. motors with a normal service tension of 800 volts, allowing for a normal speed of 100 km.p.h. and an acceleration of 0·8 metres per sec. per sec. Vacuum brakes with a potential deceleration of 1·5 metres per sec. per sec. can bring the coach to rest in 300 metres from a speed of 100 km.p.h. The coach will be exhibited at all the principal termini in Buenos Aires before being placed in service.

IRELAND

Statement on Transport Policy

An important Government statement on transport policy in the Republic was made by Mr. Sean Lemass, Minister for Industry & Commerce, at the Dundalk Chamber of Commerce annual dinner on October 18.

He said that Coras Iompair Eireann had been asked to prepare plans to bring its operating expenditure within revenue. This year, its losses would total £1,500,000 and it would be necessary to meet the deficit by increased taxation, but the principle of subsidy was fundamentally unsound. The railways were not now receiving enough freight business because of the growth of private transport. It was not obvious that, under existing working methods, even if additional business were diverted to the railways by restricting private transport, they could pay their way. Businessmen said that they were being compelled to set up their own transport organisations by stoppages in public transport arising out of trade disputes.

Railway rates had been increased to the highest economic level that the traffic could bear, and operating costs were out of all proportion to earnings. Bus fares, especially in cities, were so high as to cause hardship to the public. The need for main-line services could easily be shown because if all traffic now carried by railways had to be transferred to roads, the heavy capital expenditure involved would delay other important industrial developments.

Greenore Line Closure

Of the proposal to close the Dundalk, Newry & Greenore Railway, Mr. Lemass said that it had been kept going by a subvention from British Railways and previously by the L.M.S.R. It had been losing £40,000 a year, and the decision of the Government not to contribute towards its upkeep could not be questioned economically. In any event, the decision of British Railways to withdraw the shipping service to the port of Greenore was a death blow to the system.

POLAND

Warsaw Underground

A report from Moscow states that preliminary work on the Warsaw underground system is making satisfactory headway. Shafts are being sunk in the central part of Warsaw and at Praga, its eastern suburb beyond the Vistula. At Praga, the boggy soil has necessitated large-scale adoption of the freezing method, much used during construction of the Leningrad underground. For the sinking of the shafts mine-worker specialists from the Silesian coalfields are being employed.

WESTERN GERMANY

Reconstruction at Hamburg

Good progress is being made with the reconstruction of the main passenger station in Hamburg wrecked during the war. The new steel and glass overall roof, an exact copy of that destroyed, was completed on October 2. It is expected that the entire reconstruction will be completed by the end of this year.

Herdecke Viaduct Rebuilding

The important viaduct near Herdecke, on the direct Dortmund-Hagen line, 4¼ miles north-west of Hagen, destroyed in the war, is being reconstructed. Train services operate only between Dortmund and Herdecke, 9¾ miles. The viaduct will carry the line across the Ruhr, and when it is completed the journey between Dortmund and Hagen will be nearly 10 miles shorter than by the present roundabout routes either *via* Schwerte or *via* Witten. The reconstruction should be completed early in October, 1952.

A Mechanical Vibrator for Laboratory Test Sieves

Machine designed by the Western Region for use in soil size distribution analyses

WHEN much sieving has to be done, there are obvious advantages in stacking the sieves in tiers, pouring the material on to the top sieve, and agitating them mechanically. The machine described has been developed by the Western Region of British Railways for use in all Regions in soil size distribution analyses.

Simplicity of Construction

The machine is designed to take up to eight 8-in. or six 12-in. dia. sieves, with cover and bottom collecting pan, its important features being simplicity of construction and a minimum of moving parts, together with quick and efficient action and cheapness. It has been working for a year and has proved entirely satisfactory. Observation of the machine when working shows that the whole area of each sieve is being used and the wear of the sieves is thus kept to a minimum.

The sieves are held in a rectangular inner frame of tubular steel, as shown in the photograph reproduced below and in Fig. 1, this frame being suspended between four 6-in. × 2-in. dia. helical springs from an outer frame, tension of the springs being adjustable. Slung underneath the inner frame is a 37-V. 160-W. electric motor of the type used for concrete vibrators. At either end of the motor shaft is mounted an eccentric weight and the weights are out of phase with each other by 90 deg. The speed of the motor can be controlled.

The eccentric weights set up a compound vibration the result of which is to shake particles of a sample round the sieves in a circular motion. Considering a horizontal axis through the nest of sieves parallel to the motor shaft, the ends of this axis follow a circular path 90 deg. out of phase with each other, and the centre describes a circle of $\frac{1}{\sqrt{2}}$ × the amplitude, 45 deg. out of phase with the ends.

Thus, the sieves undergo a vertical and horizontal motion, both simple harmonic, the maximum amplitude being approximately 2 mm., and, due to the effect of the phase difference at the end of the motor shaft, a rocking motion takes place in both the vertical and horizontal planes.

Performance Test

As a test of the performance of the machine, a 200-gm. sample of Penderyn sand was sieved on the machine for varying times and the weights retained on each sieve noted, the sample being thoroughly re-mixed before each sieving so as to ensure uniformity of conditions. The results are plotted as a graph in Fig. 2.

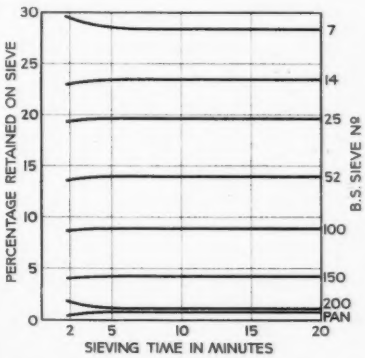


Fig. 2—Graph of performance test

It will be noted that stable conditions are reached after 7 or 8 min., and after 5 min. of sieving the results obtained differ by an average of only 0.14 per cent. from the results obtained after sieving for 20 min. As results are normally required only to the nearest whole number, it is found that a sieving time of from 5 to 15 min., depending on the shape of particles, will produce sufficiently accurate results. Where the curves show an upwards trend the par-

(*Continued on page* 460)

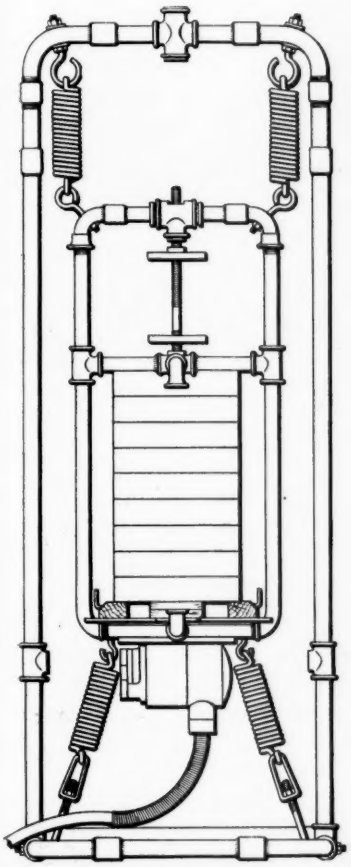
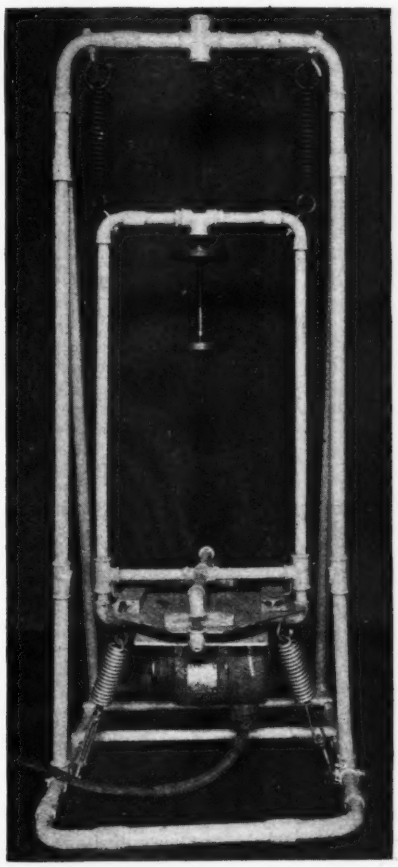


Fig. 1—Outline of frame showing method of holding sieves



Mechanical vibrator used for soil size distribution analyses

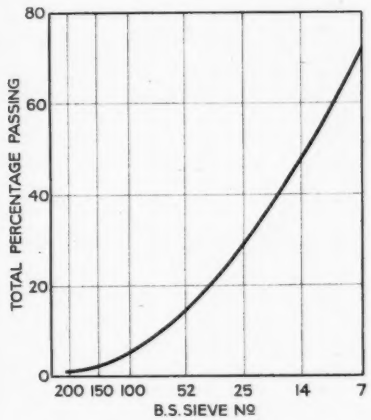


Fig. 3—Final grading curve

Radial Drilling and Boring Machine

Incorporating a cast-iron sleeve for supporting the radial arm

A NEW factory has been equipped for quantity manufacture of the Ajax 5-ft. radial drilling and boring machine by the Ajax Machine Tool Co. Ltd. The machine has been designed to meet all demands of high-speed steel and carbide-tipped tools. Ease of handling is aimed at by centralised controls. The pillar is fitted inside a sleeve, a feature which it is claimed guarantees extreme rigidity. Generous surfaces firmly secure the saddle and arm under the heaviest cutting conditions; no extra lock is required. The base of the pillar forms a suitable flange by which the machine is secured to the baseplate.

Design Details

The cast-iron sleeve which supports the arm is of heavy cylindrical section, 13 in. dia., carefully machined and fitted to the main bearings on the arm. The upper end of the sleeve is suspended on the internal pillar, thrust being taken by a heavy ball-thrust bearing. The lower portion of the sleeve is of larger diameter where it is fitted to the pillar base.

A combined ball and roller bearing takes the pressure due to the weight of the arm, and the extended portion of the sleeve at the base carries locking gear which secures the sleeve to the pillar, making a single column of considerable strength.

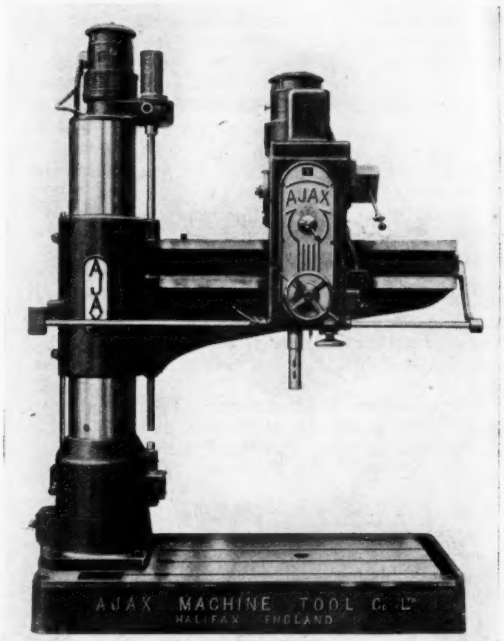
The arm, of high-grade cast iron, is designed to withstand distortion, being of well-ribbed box section with ample width and depth. The bearings on the sleeve are of ample diameter and length, and as the arm only slides up and down the sleeve, no tolerance is necessary in the bearings. The switchgear is assembled inside the arm casting by patented design.

The saddle casting is of box section, well ribbed and totally enclosed, and all gearing and mechanism work under ideal conditions. The lower portion has a V-slide accurately planed and bedded to the radial arm, giving true alignment to the spindle, the dead weight of the saddle being taken on rollers having ball-bearing spindles which travel on machined surfaces within the front of the arm. Rapid adjustment of the saddle is through steel rack and pinion from a conveniently placed handwheel. All gears in the saddle are of heat-treated nickel-chrome molybdenum steel.

Particular attention has been given to the manufacture of the gears, shafts, and so on; shafts are ground, accurately splined, and ball-bearing mounted. Lubrication is by mechanical pump and splash oiling. Combined locking is by a single lever which locks the saddle to the arm and the sleeve to the pillar simultaneously. The arm cannot swing in the locked position, and, therefore, can be elevated, retaining the true drilling position locked over the hole.

An electric motor mounted directly on the saddle provides all spindle speeds and feeds, and an auxiliary motor on the top of the column elevates and lowers the arm; d.c. or a.c. motors can be fitted. A signal lamp indicates when the machine is electrically alive. Automatic trip motion prevents over feeding of the spindle in either direction and can be adjusted for drilling to predetermined depths when several holes of equal depth are required; the spindle has a 14 in. feed.

Eight speeds are provided in three ranges, and four power feeds in "cuts per inch" are available at each of the eight speeds. A safety friction device is incorporated to prevent over-running while elevating or lowering the saddle.



Radial drilling and boring machine for high-speed steel and carbide-tipped tools

Stop, start, inching, and reverse motion are provided by a specially designed switch on the saddle. The baseplate is of box form of high-grade cast iron and a bearing is provided for supporting long boring bars. Additional box work tables can be supplied, with all faces accurately machined, front and also upper surfaces embodying tee slots.

A Mechanical Vibrator for Laboratory Test Sieves

(*Concluded from page* 459)

ticles are being received from the sieve above faster than they are being passed to the sieve below.

FINAL GRADING OF SAMPLE

B.S. Sieve No.	Percentage retained	Percentage passing
7	28·2	72
14	23·4	48
25	19·6	29
52	14·0	15
100	8·8	6
150	4·2	2
200	1·0	1
	0·8	0

These figures are plotted in Fig. 3 on page 459 and the curve obtained is typical of a crushed material. Results obtained in the test are fully within the specified limits for sieving of the British Standard Specification. To achieve the same results by the usual manual method would require the services of a trained operator for about 45 min.

TOURISTS TO BRITAIN.—Sir Alexander H. Maxwell, Chairman of the British Travel & Holidays Association, announced in London on October 20 that 58,152 tourists visited Britain in September which is 22 per cent. more than in the same month last year. Of these, 13,569 were from the United States, 19 per cent. more than last September. In the first nine months of this year more than 586,000 foreign travellers have visited Britain and 110,000 of these have been Americans.

SAFETY PRECAUTIONS FOR WORKERS IN WELLS.—So far, there has been no readily available literature on the subject of safety precautions to be taken during the construction of, and maintenance work in, wells. To meet this lack the Institution of Civil Engineers has just published a booklet "Memorandum on Safety Precautions Recommended for Workers in Wells" the main purpose of which is to draw attention to the dangers attendant on such work and more particularly to the precautions which are advisable. Copies are available from the Institution of Civil Engineers, Great George Street, S.W.1, price 1s. 6d.

THOS. COOK & SON LTD. IN KENYA.—An office in Mombasa, Kenya, has just been established by Thos. Cook & Son Ltd. This is the latest link in the chain of more than 350 branches operated by this firm and its associated companies.

Modern General-Purpose Locomotives for Western Australia

A new light-axleload engine for 3 ft. 6 in. gauge, designed to burn a low-grade fuel

THE first railway was built in Western Australia in 1871 and was a privately owned timber line. The first Government railway in the State was opened in 1879 to serve the lead mines in the Geraldton district. Then expansion rapidly took place until the position became stabilised with some 4,252 miles of 3 ft. 6 in. gauge line as an interconnected network.

The last half-century has seen continuous expansion and increase in trade, especially during the last ten years. In 1900, Perth had a population of 25,000, but is now a thriving city of 250,000 people. The railway system suffered, as did so many during the period between the wars, from lack of expenditure in maintaining its track and equipment. The Western Australian authorities have now decided on the expenditure needed to modernise the railway to meet the ever increasing needs of the State.

Old locomotives and rolling stock are being replaced and methods and organisation improved. An example of this is shown by the fact that in 1930 the railway had some 13,000 wagons, whereas now, with fewer wagons, the ton-miles have increased by approximately 30 per cent. to 520 million.

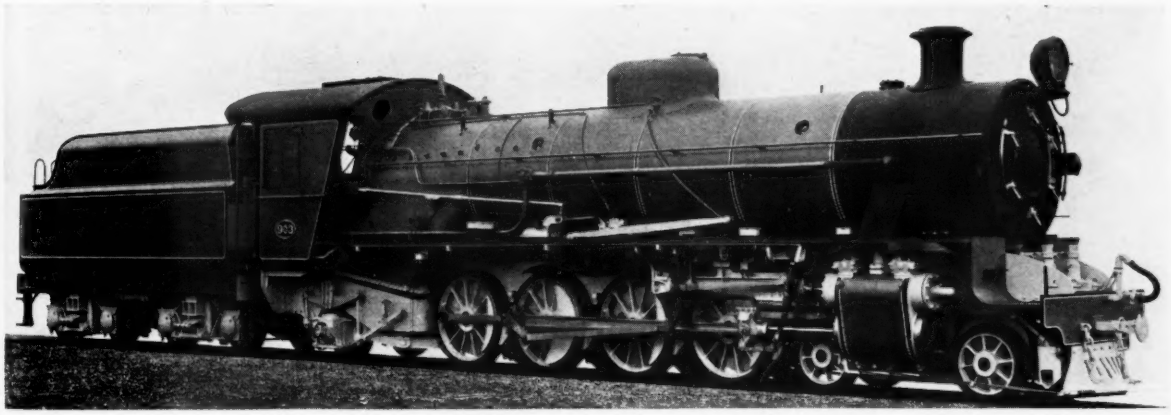
Standardisation

A definite policy of standardisation of locomotives for this railway has been evolved, and one of the first steps was the ordering of 35 "PM" class locomotives from the North British Locomotive Co. Ltd. and, later, 20 Mountain type "W" class locomotives from Beyer, Peacock & Co. Ltd. The number was subsequently increased to 60. The "PM" class locomotives were described and illustrated in our February 10, 1950, issue.

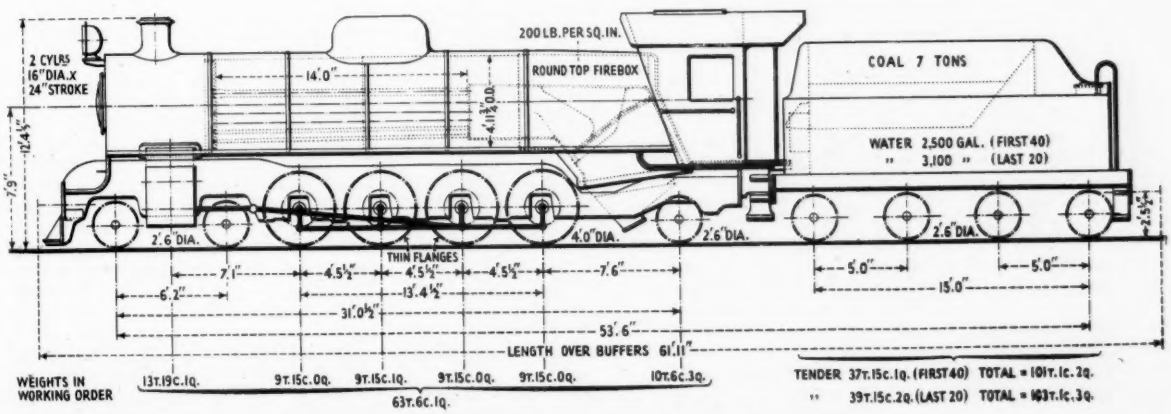
In the first place, it was required that the Mountain type locomotives should be a useful general-purpose engine for operation on the light rail sections—of which there are some 2,000 miles, mainly of 45 lb. rail—and be capable of burning low-grade Collie coal.

The engine should also be capable of working over a ruling grade of 1 in 40 uncompensated, with frequent grades of 1 in 60 in most sections, and main-line curves of seven chains and five chains in sidings. The maximum speed is 45 m.p.h. and the maximum axleload was eventually fixed at 9¾ tons on the coupled axles, 10¼ tons on the trailing truck, and 10 tons on the tender. The "W" class is thus a completely new design in its main characteristics, although embodying W.A.G.R. existing standards where possible.

Collie coal is a sub-bituminous non-coking deposit found in the southern part of the State and with an 8 per cent. ash content and a 25 per cent. moisture content; special arrangements are required for its efficient combustion. Special attention has been given to the boiler design which has a large firebox and combustion chamber. The ratio of



General-purpose 4–8–2 locomotive for 3 ft. 6 in. gauge on a light axleload



Principal dimensions and weights of the locomotive

firebox volume to grate area was specified to be not less than 6 to 1. It had also to be borne in mind that water is scarce and of high salinity—up to 30 grains of salt.

Modern features have been introduced, especially in the cab, to provide the maximum comfort for the engine crew within the limits of the 3-ft. 6-in. gauge. The design evolved combines the experience of railways having similar difficulties in other parts of the world.

Boiler Design

The boiler is an outstanding feature of this design, which has a firebox of unusual proportions for its axleload and power. This, coupled with the length necessary on an 8-coupled arrangement, accounts for the unusual appearance of the boiler. The firebox is of round-top construction with combustion chamber and has an inner firebox of Colville Double Crown special firebox quality steel. The firebox is of all-welded construction. The increased volume is obtained by a combustion chamber and good circulation, and steaming quality is enhanced by the provision of a thermic syphon, a feature new to Western Australian locomotives, and two 3in. dia. arch tubes.

There are 22 large tubes 5¼ in. dia. and 70 small tubes 2 in. dia., all of solid drawn steel. The firebox crown is direct stayed with expansion stays at the front end. The water space stays are of Brown Bayley Longstrand steel, and flexible stays are fitted in the breaking zone on the side, back, and combustion chamber. The superheater, supplied by the Superheater Co. Ltd., is to its latest design, with ball joint elements made from solid drawn 1⅛ in. dia. steel tubes with integrally forged return bends; an anti-vacuum valve is fitted on the superheater header. The foundation ring is of mild steel fabricated by electric welding and is fully machined on the surfaces in contact with the plates.

Special attention has been paid to providing ample access for wash-out purposes, and a sludge collecting well is fitted underneath the front course immediately below the side-feed clack boxes. Two Everlasting blow-off cocks, one on the mud collector and the other located on the firebox, discharge through silencers. A Joco, type 0, balanced valve is located in the dome, and is operated by the quadrant type of regulator handle. Two Gresham & Craven No. 9, R.C.W. live steam non-lifting injectors are fitted, both arranged on the fireman's side, with quick-acting steam valves on the side of the firebox.

The main steam turret, which supplies all auxiliaries, is outside the cab. The boiler, firebox, and dome are insulated with asbestos mattresses. The boiler is supported at the smokebox end by a saddle casting, and at the rear by sliding shoes arranged at the front of the firebox and resting on the frame joint-casting, with breather plates at the back. The boiler is designed, built, and tested to conform to the requirements of the Australian Boiler Code, although the materials are in accordance with British Standard Specification.

The smokebox is self-cleaning and of ample proportions, with cast-iron blast pipe and chimney; a spark arrestor is provided. A simple blower ring is fitted round the blast pipe. The blast pipe cap has four Goodfellow tips and the steam pipes are of cast iron. The smokebox front plate is bolted on and carries the steel dished smokebox door. A combined blower elbow and tube cleaner cock is fitted on the side of the smokebox.

An all-welded ashpan of the self-emptying hopper type is fastened to the engine frame and not to the foundation ring as in conventional designs. There is a fixed air space between the top of the pan and deflector plates which are attached to the foundation ring. The discharge door is operated from ground level. British-made Waugh firebars form the firegrate, and are rocked by hand from the cab, the front portion forming a drop grate; ashpan drench gear is fitted.

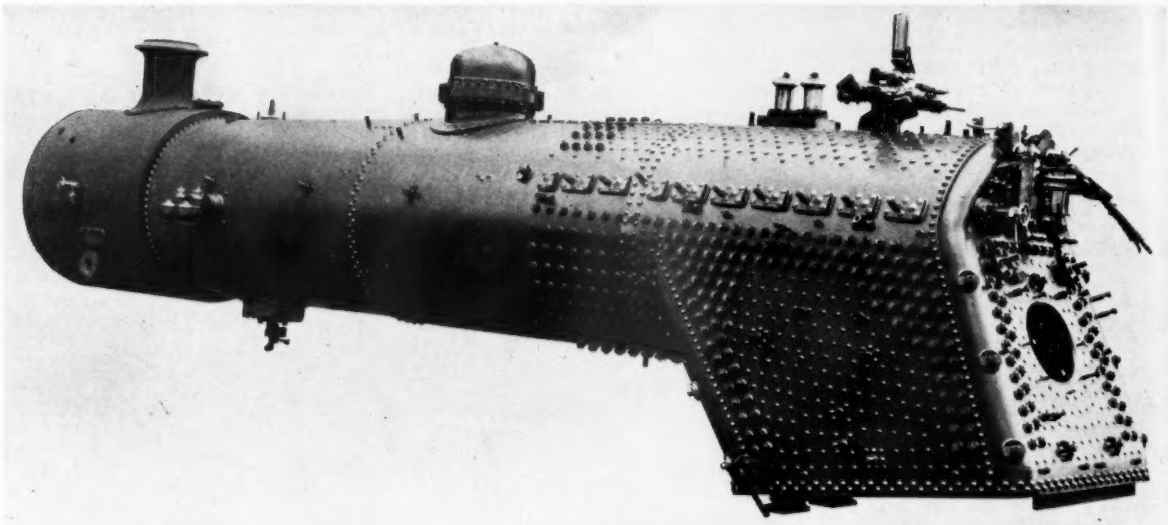
Engine Design Features

The engine frames are of steel plates to B.S. No. 24, Part 6, rigidly stayed throughout by steel plate and cast-steel stretchers. Each frame is in two sections, the rear portion being set wide apart to accommodate the hopper ashpan.

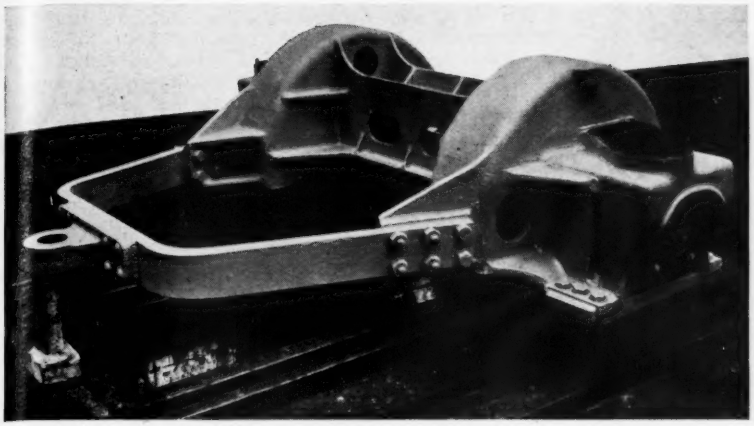
A steel casting provides the joint between the frames, and also acts as a firebox support. The arrangement of the frames and their staying has received special attention and the high platform has allowed easy accommodation of certain fittings and ready access for inspection and repair.

The cylinders, which are interchangeable, are of cast iron, fitted with Wota N.C. by-pass valves. The piston valves have separate heads with four narrow rings. The piston heads are of cast iron and are fitted with two narrow rings. Seatrist metallic packing is provided for the piston rod and the valve spindle. The cylinders are lagged with asbestos mattress; drain cocks of conventional design are operated from the cab.

Particular attention has been given to the method of supporting the slide bars. These are hung directly from the main girder and are not supported at the front end on the cylinder cover. The design allows the piston head to be pushed clear of the cylinders for replacing piston rings. Also it is claimed that correct slide bar alignment is maintained at all times. The Laird type of



Boiler, showing sloping back plate and long barrel



Cast-steel single-piece hind truck

crosshead has cast-iron slide blocks with renewable bronze liners; bronze liners are also fitted on the inside of the crosshead jaws.

The Walschaerts valve gear allows a 75 per cent. cut-off in full gear with a valve travel of 5½ in., and the arrangement of the swing link which supports the combination lever and valve rod is such that it eliminates the usual valve spindle crosshead and guide. A phosphor bronze die block is fitted and the motion has case-hardened pins with bronze bushes; oil lubrication is used. Hadfield power reverse gear is positioned on the right-hand side and moving parts are reduced by the use of a yoked reversing rod.

The connecting and coupling rods are of forged steel Class C to B.S. 24, Part 4. The connecting rods are fluted and the coupling rods are plain rectangular section. The large ends have adjustable brasses lined with white metal, and the small end bushes are of phosphor bronze. All coupling rods have white-metal-lined bronze bushes with the railway standard pin-feed oil lubrication.

Wheel centres are of cast steel with balance weights cast integrally for the leading, intermediate, and trailing wheels, the driving wheel balance being lead-filled. Balancing is designed to give a maximum hammerblow on any one wheel of 10 cwt. at 5 rev. per sec. and 20 per cent. of the reciprocating weights are balanced. Rolled-steel tyres are shrunk on with the double-snip type of tyre fastening, similar to that recently adopted by British Railways; all tyres are flanged.

Coupled axleboxes have a cast-steel shell with bronze bearings and sliding cast-iron keeps which contain Armstrong oilers. The bearings and hub faces are lined with white metal; manganese-steel liners are riveted on the horn faces. Syphon oil boxes are mounted on the frame above each coupled wheel and feed the coupled axlebox bearings and horn guide faces.

The coupled horn blocks of the horseshoe type have wedges on the hind faces of case-hardened steel. The main bearing springs are of the laminated type located under the axles in the case of the coupled wheels, compensation being arranged throughout on each side of the engine for the coupled and trailing radial wheels.

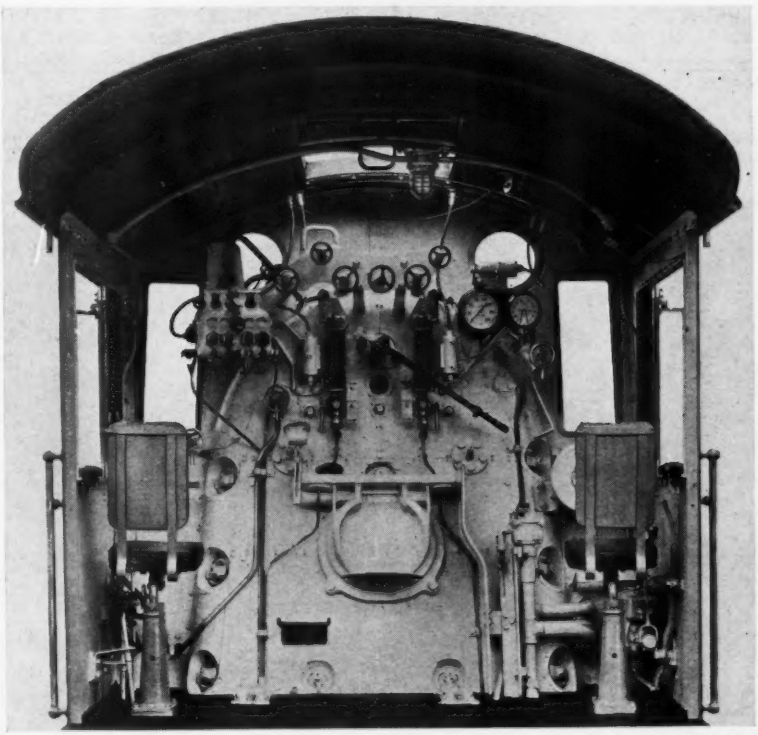
Drawgear, Bogies, and Brake Gear

A combined central buffer and coupler to the railways standard is fitted for the train connection. Special attention has been given to the design of the intermediate buffing and drawgear between engine and tender which comprises a drawbar, safety bar, and rubbing blocks; these latter are faced with manganese-steel liners. Four helical compression springs maintain constant contact between the rubbing blocks. The leading bogie is of the centre bearing, sliding centre type, with laminated spring side control. It has plate frames with the main stretcher of cast steel fitted with gunmetal liners for the slide. Axleboxes and guides are fitted with manganese-steel liners.

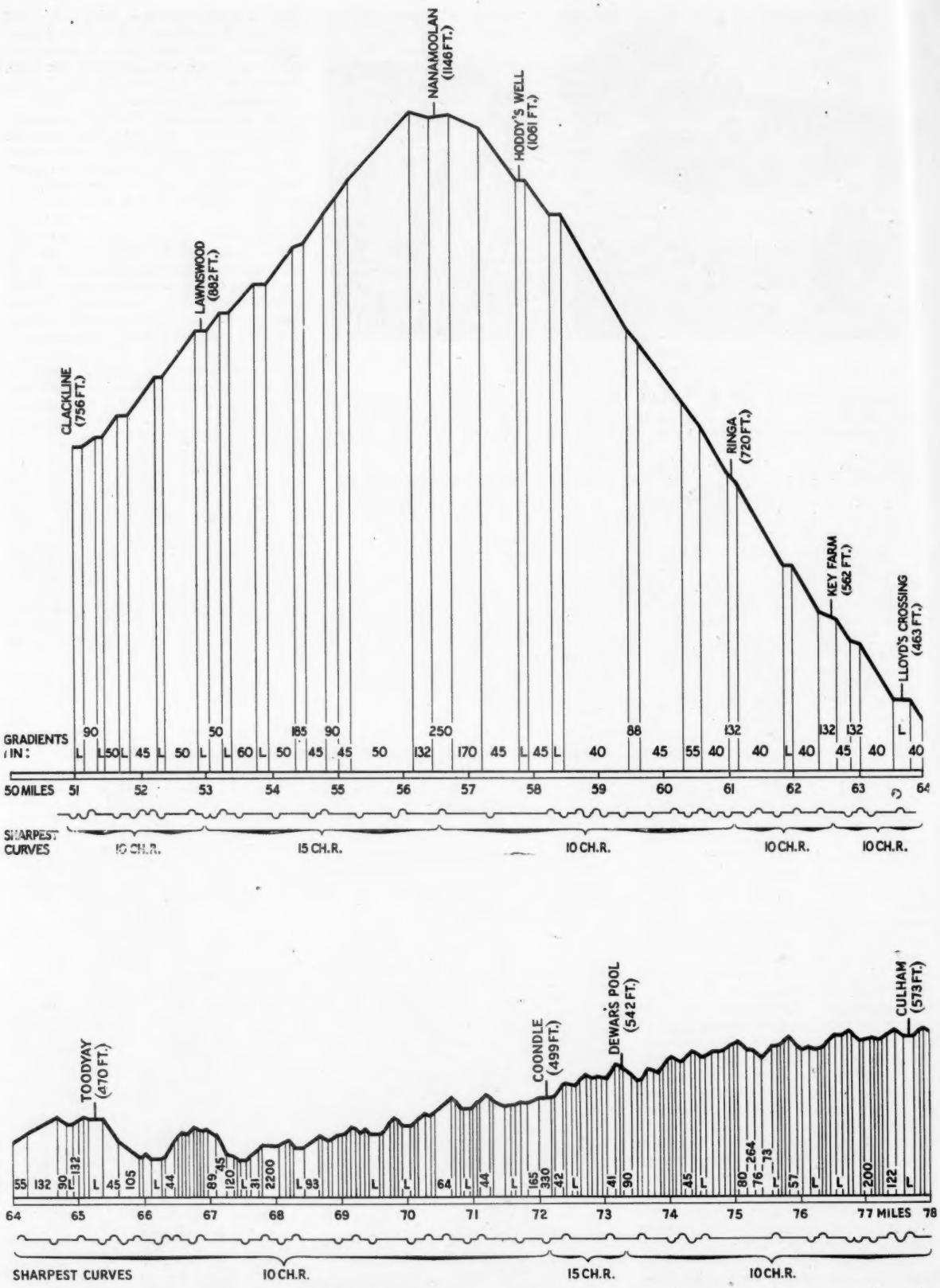
The trailing radial truck is of special design. The roller-bearing axlebox casing forms part of the bogie frame, the two side casings, shields, and cross member being cast in one piece. A strong construction has been obtained by this arrangement and the whole is shielded from ash and dust. The truck bearing springs are mounted on the main frame above the axles resting on the sliding shoes working in an oil bath, and side control is by means of helical springs. All bogie and truck wheels are provided with SKF roller-bearing axleboxes.

Vacuum brake equipment is fitted for the engine, tender, and train. The brake on the engine is applied to all coupled wheels, and the brake gear is provided with equalisers. An SSJ ejector of the latest pattern supplied by the Vacuum Brake Co. Ltd. is mounted on the first course of the boiler barrel and the Duplex steam valve is also outside the cab with control spindles passing through to the driver's position; a separate driver's brake valve is provided. An auxiliary hand brake is fitted on the tender.

Attention has been paid to the cab design to overcome the restrictions brought about by the loading gauge. The sloping back plate ensures that only the minimum amount of the boiler projects into the cab, thus keeping it as cool as pos-



Interior of cab



Gradient profile on the Toodyay branch of the Western Australian Government Railways: Clackline—Lloyd's Crossing, Toodyay—Culham

sible. Seats for driver and fireman, with Dunlopillo cushions, adjustable for height and position with spring backs, and foot rests give maximum comfort; fixed arm rests are also provided. A double roof with air space between is provided. The floor is free from encumbrances and a narrow fall plate is hinged on the front of the tender. There are hinged windscreens forward of the side windows.

The steam reversing gear gives finger-tip control with a hand locking device; the brake handle, regulator, and other controls are easily accessible.

The regulator spindle has Walker Stella packing, and two Dewrance water gauges are provided with water level indicator plates. Other fittings include a 3-note deep-chime whistle, two 3 in. dia. Ross pop safety valves, a scum cock which discharges into the blow-down silencer, coal watering cock, and ashpan drench valve. A Wakefield AC four-feed hydrostatic lubricator provides one feed to each steam pipe and one to each cylinder barrel.

Stone's electric lighting equipment includes a head light and side light on the smokebox, two side lights on the tender, and the usual fittings in the cab to illuminate gauge glasses and steam reverser indicator plate. A fixed inspection light is provided for the motion. The 500-W. turbo-generator is fitted underneath the platform.

A B.T.H. electrical speed indicator type DL4 actuated from a type JB generator mounted on the cover of the right-hand trailing truck axlebox is supported on a resilient mounting under the cab window on the driver's side. It is adjustable to compensate for tyre wear.

Gravity sanding is used, the main sand box being mounted on the top of the boiler by the side of the dome, and sand is delivered in front of the leading coupled wheels. The dome cover is extended to enclose sandbox and dome.

Tender and Equipment

The double bogie tender has a frame of rolled-steel sections with cast-steel dragboxes and bogie top centres. The bunker is self-trimming with sloping side plates of approximately 50 deg. Tank and bunker are of riveted construction and the sides have been stepped inwards above the top of the tank to give the best possible vision when looking back from the cab. Ventilated food cupboards and tool boxes are conveniently arranged.

The bogies are of the diamond frame type with centre bearing and bolster suspension. The bearing springs are of the elliptic laminated type and all axles have SKF roller bearings. There is a vacuum brake on the tender in addition to the hand screw. The engines are complete with tools and two 25-ton lifting and traversing screw jacks.

The first 40 locomotives have been shipped partly assembled and the remaining 20 will be shipped fully erected. Several are already in service and trials are being carried out under load with an electrical strain gauge dynamometer designed and built by the W.A.G.R. Results so far available show the engines to be giving an excellent performance. A trailing load of 900 tons was easily handled at a speed of 35 m.p.h. on level track, a drawbar tractive effort of 9,000 lb. being recorded at this speed.

On the section Lloyd's Crossing-Nanamoolan, over a steady climb of 7 miles of 1 in 40 uncompensated grade with curves of 10 chain radius, 200 tons were handled with ease and steam pressure did not drop below 195 lb. per sq. in. Tests were carried out using 75 per cent. open-cast and 25 per cent. mined coal of an average c.v. of 8,500 B.Th.U.

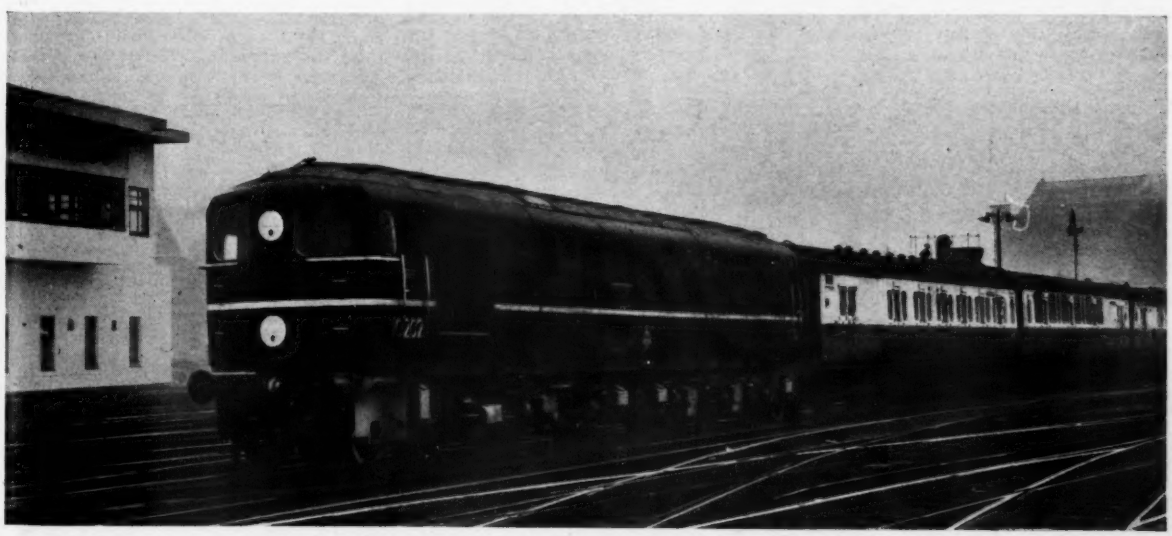
The locomotives were designed and built at the works of Beyer, Peacock & Co. Ltd., in accordance with the detailed requirements of the Western Australian authorities. The original order for 20 locomotives was arranged during the régime of the late Mr. F. Mills, M.I.Mech.E., M.I.E.Aust., M.I.Loco.E., Chief Mechanical Engineer, who was subsequently succeeded by Mr. T. Marsland, A.M.I.E.Aust., M.I.Loco.E.

The order was eventually increased to 60, and various amendments were made in the design to the instructions of Mr. C. W. Clarke, M.I.Mech.E., M.I.Loco.E., Assistant Commissioner (Engineering). The contract was controlled by the Agent-General for Western Australia, and inspection by his Inspecting Engineer, Mr. J. Hannah, M.B.E., M.I.Mech.E., M.I.Loco.E.

The leading dimensions are:—

Gauge	3 ft. 6 in.
Cylinders (2), dia. and stroke	16 in. × 24 in.
Coupled wheels, dia.	4 ft.
Wheelbase, coupled	13 ft. 4½ in.
Wheelbase, engine	31 ft. 0½ in.
Wheelbase, engine and tender	53 ft. 6 in.
Length over buffers	61 ft. 11 in.
Heating surface :—	
Firebox (inc. 1 syphon and 2 arch tubes)	184 sq. ft.
Tubes	930 sq. ft.
Total evaporative	1,114 sq. ft.
Superheater	305 sq. ft.
Total	1,419 sq. ft.
Grate area	27 sq. ft.
Boiler pressure	200 lb. per sq. in.
Tractive effort at 85 per cent. boiler pressure	21,760 lb.
Coal capacity	7 tons
Water capacity { 40 engines	2,500 gal.
Water capacity { 20 „	3,100 gal.
Maximum coupled axleload	9·75 tons
Total weight, engine and tender in working order— { 40 engines	101 tons
Total weight, engine and tender in working order— { 20 „	103 tons

Main-Line Diesel-Electric Locomotive in the Southern Region



Diesel-electric locomotive No. 10202 *leaving Waterloo Station, Southern Region, with the* 1 *p.m. West of England express on October* 15 (*see paragraph in our October* 19 *issue*)

Lightweight Steel Restaurant Cars in Switzerland

Further weight reduction in new vehicles with improved facilities for passengers and staff

Interior of car showing seating arrangements

SIX new lightweight steel restaurant cars now being delivered to the Swiss Federal Railways embody detail improvements on the preceding series of 14 cars, notably in the reduction of weight to 31½ tons fully equipped. The overall length has been increased by 6 ft. 7 in., and accommodation is provided for a maximum of 52 pasengers.

There are six tables with four seats each in the two dining compartments, with a further similar table at the kitchen end of the car that is normally reserved for the staff, but available for passengers at busy periods. The seats adjacent to the central corridor are arranged to tip up for easy access to the window seats, and the tables can be lifted and secured in the raised position to facilitate cleaning the car.

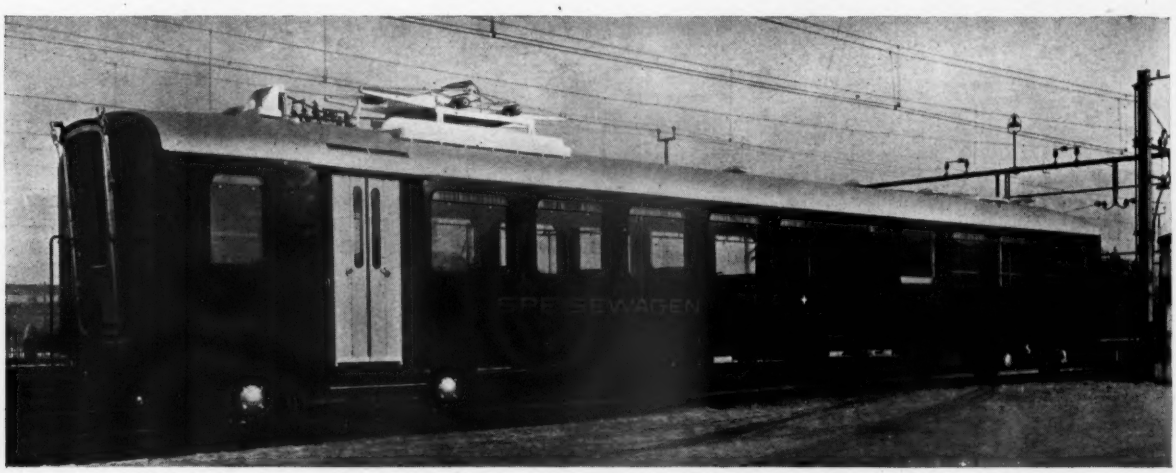
In general the seating arrangements and service accommodation are more roomy than in the earlier dining cars. Reproductions of Swiss landscapes decorate the interior. Two loudspeakers are installed for broadcasting announcements and music when the cars are used on special excursion trains. The dining compartments and vestibules are equipped with fluorescent lighting, but the kitchens are lit with standard 36 V. filament lamps. A shaft-driven dynamo and lead-acid accumulator provide the lighting supply.

The all-electric kitchen has a total loading of 39 kW., and is supplied in normal running from the 1,000 V. train heating circuit, which originates on the locomotive. A transformer under the floor of the car steps the voltage down to 220 for the kitchen equipment. When the car is stationary or is being shunted at speeds not exceeding 25 m.p.h, the kitchen supply is taken from the 15,000-V. overhead line by means of a pantograph and a 15,000/220-V. transformer in the roof. Should the contact line supply fail or speed exceed 25 m.p.h., the pantograph is lowered automatically. Signal lamps in the kitchen and the switchgear cupboard are illuminated when current is available *via* the pantograph. Groups of electric heaters are arranged in the side walls of the vehicle.

Mechanical Construction

In mechanical construction the vehicles are similar to their predecessors, the body being in the form of a self-supporting tubular girder with its components assembled by welding. A single door for direct access from station platforms is provided in each side of the car, the normal entry for passengers being by means of the corridor from the other vehicles of the train. Doors for the staff are provided on both sides at the kitchen end of the car. The vehicles are being built by the Swiss Rolling Stock & Lift Works, Schlieren, Switzerland, and were described in the *Bulletin des C.F.F.*

EFFECT OF WELDING ON HEALTH.—An investigation into the possibility of ill health arising from the welding process has been carried out by the Factory Department of the Ministry of Labour & National Service. The investigation consisted of a survey of types of welding, followed by clinical examination of 250 welders in different industries, supplemented by special examinations. Main conclusions are that welders do not suffer from any specific disease and that occupational dermatitis does not appear to be a serious cause of disability. Some general recommendations are made in a publication " Health of Welders," by A. T. Doig and L. N. Duguid, obtainable from H.M. Stationery Office, price 3s.



New lightweight steel restaurant car, Swiss Federal Railways

RAILWAY NEWS SECTION

PERSONAL

Mr. Arthur C. McCarthy has been appointed General Manager of the Grand Trunk Western Railway, in succession to Mr. C. A. Skog, formerly Vice-President & General Manager, who has relinquished the position of General Manager, but is continuing as Vice-President.

Mr. Herbert Greig, Commercial Superintendent's Department, Scottish Region, has been appointed General Assistant to Commercial Superintendent.

Mr. C. J. Lamb, B.Sc., A.M.I.Mech.E., District Motive Power Superintendent, Edge Hill, London Midland Region, who,

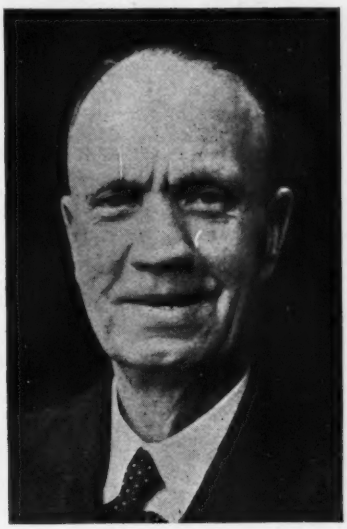
The London Midland Region has announced that Mr. A. H. Emerson has been appointed Electric Traction Engineer, Manchester Electrified Lines, comprising the Manchester-Bury, Manchester South Junction & Altrincham, and Manchester-Sheffield-Wath electrifications. Mr. A. H. Emerson's Assistant is Mr. T. E. Wilson, who, before this appointment, was Assistant Resident Engineer, Manchester-Sheffield-Wath electrification.

Mr. George Smith, M.B.E., District Operating Superintendent, Hull, North Eastern Region, 1949-50, whose death we recorded briefly last week, joined the North Eastern Railway at York in 1900. He enlisted on September 4, 1914, in the Territorial Force, and in 1915 was commissioned in the Royal Engineers (T.F.). He was posted to a field company, and, after serving with the 6th Division in France and Belgium, was transferred to the Railway Operating Division in 1917. He was demobilised in 1919, with the rank of Captain, and returned to the York District Superintendent's Office, as Train Clerk. Shortly afterwards he went to the Ministry of Transport, returning to the N.E.R. in 1921, and later becoming one of the first Deputy Chief Controllers in the Main-Line Control at York. Subsequently Mr. Smith held various appointments until he was made Yardmaster, Hull, (1938); Supernumerary Assistant to District Superintendent & District Locomotive Superintendent, York (1942); Deputy Head of Central Traffic Office, Marylebone (1942); Assistant District Superintendent, Darlington (1944); and Assistant District Superintendent, Hull (1947). Mr. Smith was appointed to the position of District Operating Superintendent, Hull, in 1949, and retired the following year. He was awarded the M.B.E. for his work as Yardmaster at Hull.

We regret to record the death on October 17, at the age of 58, of Mr. F. Weller, O.B.E., Chief Officer (Administration), Railway Executive. He entered G.W.R. service in 1908 in the Goods Department at Paddington, and subsequently gained general experience at South Lambeth Goods Station and in the London District Manager's Office. From 1916 to 1919 he served with the R.A.M.C. In 1923 he was transferred to the General Manager's Office, where he had experience of commercial questions affecting the company's railway, dock, and steamboat services, and acted as Secretary of the Suggestions Committee for a period. In 1932 he became first assistant in the General Section, and in 1939 was placed in charge of the section. After the outbreak of the war in 1939 Mr. Weller was placed in charge of the staff retained at Paddington to deal with war emergency arrangements and urgent matters arising from the Government control of railways. During this time he accompanied Sir James Milne to meetings of the General Managers' Conference and thus had close contact with many major questions of railway policy. In 1942 he was appointed Assistant to the General Manager (Sir James Milne) for Special Duties; and in 1947 Acting Principal Assistant. He became Chief Officer (Administration), Railway Executive, in 1948. Mr. Weller was a Brunel medallist of the London School of Economics; he received the O.B.E. in the 1950 new-year honours list.

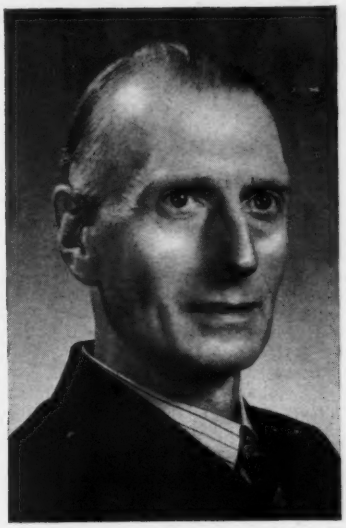
Mr. C. J. Lamb

Appointed District Motive Power Superintendent, Glasgow (North), Scottish Region



The late Mr. George Smith

District Operating Superintendent, Hull, North Eastern Region, 1949-50



The late Mr. F. Weller

Chief Officer (Administration), Railway Executive, 1948-51

as recorded in our August 3 issue, has been appointed District Motive Power Superintendent, Glasgow (North), Scottish Region, was educated at Aberdeen Grammar School, Glasgow University, and the Royal Technical College, Glasgow. After joining the L.N.E.R. in 1923, he served an apprenticeship at Inverurie Works, and Cowlairs Works, Glasgow. In 1929 he became Running Shed Foreman, Ferryhill, Aberdeen, and in 1932 and 1934 took up similar appointments at Hawick and Hartlepool respectively. After special training in operating and commercial work, Mr. Lamb was, in 1937, appointed Stationmaster, Alnmouth. For a period he was acting Assistant District Locomotive Superintendent, York, and afterwards Head of General Section, Locomotive Running Superintendent's Office, York. In 1939, he was appointed Assistant District Motive Power Superintendent, Sunderland, and later that year held a similar position at Darlington. He became Technical Assistant to the Locomotive Running Superintendent, York, in 1942, acting Assistant Locomotive Running Superintendent, Edinburgh, in 1943, and District Locomotive Superintendent, Burntisland, in 1945. Mr. Lamb was appointed District Motive Power Superintendent, Edge Hill, Liverpool, London Midland Region, in 1948.

MR. F. WELLER—AN APPRECIATION

Mr. David Blee writes:—

The untimely passing of Mr. F. Weller, O.B.E., Chief Officer (Administration), Railway Executive, leaves a deep personal sense of loss of a most able colleague, of a model of loyalty, of a warmth and depth of character and of a live, friendly and piquant humour. His knowledge of the industry he served with such distinction resulted from a life-time's constancy of study and development of his natural gifts of writing and expression.

His long administrative experience in the service of the Great Western Railway, culminating in his appointment as Principal Assistant to Sir James Milne, K.C.V.O., C.S.I., General Manager, made him a natural selection, in the changes which

Mr. G. R. Robinson

Appointed Assistant Regional Staff Officer, Southern Region, British Railways

Mr. W. McKie

Appointed Assistant Stores Superintendent, Eastern & North Eastern Regions

Mr. S. C. Pearson

Appointed Assistant (Special Duties), Office of Commercial Superintendent, North Eastern Region

took place at the close of 1947, for the appointment he has now laid aside. The band of Officers with whom he worked rapidly came to realise that here was a man of breadth of mind above and beyond all those natural rivalries of different companies and origins. It was an amazing and just tribute to him to see how, by the close of the first year, all—L.M.S.R., L.N.E.R., Southern Railway and Western Officers alike—were conscious only of being members of one team. All worked with him as a band of brothers.

His knowledge and experience, acquired from some 25 years in successive posts under former General Managers of his company, were invaluable during the first four years of the new railway administration. His tremendous capacity for application of mind: his unsparing draughts upon the wells of physical and mental energies belied his slight physical frame. His thought was constantly for others. He was truly a father of his staff, and a constant example to all. No man made friends more naturally, and those friendships were widespread, deep and lasting. Yet he had so little time.

Fred Weller ("Sam" to his intimate friends—amongst whom it was an honour to be counted) will be remembered as long as any who had the privilege of knowing him live; with respect for his integrity, his loyalty, his ability, and for the contribution which he made to the advancement of transport. But as memory of duty well done fades, there will survive his high example and our love for a valiant, noble and whimsical character.

Mr. G. R. Robinson, Assistant (Wages Staff), Regional Staff Office, Eastern Region, who, as recorded in our August 3 issue, has been appointed Assistant Regional Staff Officer, Southern Region, entered the service of the North Eastern Railway as a junior clerk in 1915. In 1922 he won a traffic apprenticeship, by competitive examination, and received special training at stations, marshalling yards, docks and district offices, until 1925, when he was appointed to a position in the wages staff section of the L.N.E.R. Chief General Manager's Office. He was placed in the corresponding position in the Regional Staff Office of the Eastern Region when it was formed in 1948. Mr. Robinson is a Bachelor of Commerce of the University of Durham. He was Secretary of the employer's side of L.N.E.R. Sectional Councils Nos. 2, 3, 4 and 5 from 1935 until those Councils were disbanded last year. He was the L.N.E.R. representative on the Railways Staff Conference Sub-Committee for many years and has been Chairman of that body since 1948.

Mr. W. McKie, Assistant Stores Officer, Scottish Region, who, as recorded in our October 5 issue, has been appointed Assistant Stores Superintendent, Eastern & North Eastern Regions, was educated at Kilmarnock Academy, and entered the service of the G.S.W.R. in 1913. During the 1914-18 war he served with the Royal Field Artillery, and on demobilisation returned to the service of the G.S.W.R. Mr. McKie later became General Assistant to the Stores Superintendent, Northern Division, L.M.S.R., in which capacity he was largely responsible for the extensive reorganisation of the Stores Department in Scotland. He was subsequently appointed Divisional Storekeeper for the Northern Division of the L.M.S.R., at Glasgow, and in 1949 became Assistant Stores Officer, Scottish Region. In March, 1950, Mr. McKie was loaned to the Eastern & North Eastern Regions to assist in the re-organisation of main workshop stores.

Mr. W. D. Moore has resigned from the board of Craven Brothers (Manchester) Limited.

Mr. P. G. S. Clark has been elected a Director of the Trent Motor Traction Co. Ltd., in place of Mr. M. J. C. Taite.

The late Sir Theodore Thomas, who was General Manager of London Passenger Transport Board between 1943-45, left £29,877 (duty £5,661).

Mr. F. J. Gemmell Smith, Public Relations Representative for the Canadian National Railways in Europe, has been appointed Public Relations Officer, with headquarters in London. Mr. E. F. Humphries, his Assistant, has been appointed Public Relations Representative.

Mr. S. C. Pearson, Head of Works Section, Commercial Superintendent's Office, North Eastern Region, York, who, as recorded in our August 17 issue, has been appointed Assistant (Special Duties) in the Office of the Commercial Superintendent, began his railway career at Luton and afterwards served at Knebworth, Huntingdon and Dunstable. He was subsequently transferred to the District Commercial Superintendent's Office, Peterborough, and after being appointed a district representative covering the Spalding area, was transferred to London, where he held posts in the offices of the Goods Manager and Chief General Manager. During the war Mr. Pearson was seconded to the Ministry of Supply Headquarters, Shell-Mex House, London, in the capacity of Chief Transportation Officer. In 1945 he was transferred to York to become Head of the Development Section (Passenger), subsequently being promoted Head of Works Section, Commercial Superintendent's Office.

We regret to record the death in Argentina of Mr. W. G. Stevenson, former Maintenance Engineer in the Coach & Wagon Department of the Buenos Ayres Great Southern Railway.

Monsieur Jean Sauvajol, who has recently been appointed Chief Regional Officer of the Mediterranean Region of the French National Railways, had previously been Assistant Chief of the Headquarters Operating Department in Paris, and in that capacity had made many friends among British railway officers. He paid a visit to England on Monday, October 15, and was entertained to lunch at 222, Marylebone Road, by the Chairman and Members of the Railway Executive; Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, and Mr. R. H. Hacker, Chief Officer (Continental), Railway Executive, were also present. The same evening Monsieur Sauvajol dined informally with his friends of the Southern Region at the Grosvenor Hotel, Victoria. Among those present, were Mr. Hopkins and Messrs. R. P. Biddle, Docks & Marine Manager; S. W. Smart, Superintendent of Operation; R. E. Sinfield, Continental Superintendent; F. W. Case, Audit Assis-

tant to Accountant; H. J. Bourn, Assistant Continental Superintendent; P. C. Durrant, General Agent for France, British Railways; Monsieur Deshayes, Managing Director, French Railways Limited.

Mr. F. L. Burton has been appointed Freight & Passenger Agent at the Canadian Pacific Railway Manchester office. He joined the company at Liverpool in 1924 and, except for war service, remained there until his transfer to Manchester in June, this year.

Mr. E. J. Batchelor has been appointed Managing Director of Henry Meadows Limited. He had previously been a Director and General Manager.

We regret to record the death on October 20, at the age of 80, of Sir James Bennett Brunyate, K.C.S.I., C.I.E., sometime Financial Secretary to the Government of India, and Chairman of the Nizam's State Railway from 1935 to 1942.

The following notification appeared recently in *The London Gazette* under the heading of Regular Army—Supplementary Reserve of Officers, Royal Engineers:—

Lt.-Colonel K. R. M. Cameron from R.E. (Transportation Section), to be Lt.-Colonel, September 1, 1951, retaining his present seniority.

We regret to record the death on October 4, at the age of 78, of Mr. Richard W. Long, who retired in March, 1939, as General Freight Traffic Manager, Canadian National Railways. At the outbreak of the recent war he was appointed Director of Traffic for Allied War Supplies and later he became Administrator of Railways for the Wartime Prices & Trade Board.

Guest Keen Baldwins Iron & Steel Co. Ltd., has stated that Mr. H. W. A. Waring is relinquishing the appointment which he has held for the last four years as Secretary of the company and its subsidiaries, to take up an appointment as Director of the Power & Steel Division of the Secretariat of the United Nations Economic Commission for Europe in Geneva. Mr. L. R. P. Pugh has been appointed to succeed him.

We regret to record the death on October 24, at the age of 62, of Mr. R. C. Rattray, Executive Officer, Engineering (Development), Railway Executive. Cremation will take place at Golders Green at 10.30 a.m. on Saturday, October 27.

Mr. Robert M. Hoel has been appointed Sales Agent for the American Car & Foundry Company at Chicago.

Mr. W. N. Duffy has been appointed Publicity Manager of Ferranti Limited, in succession to Miss H. S. O'B. Hoare.

Mr. T. S. Pick, Electrical Engineer, London Transport Executive, has recently returned from the United States, where he has been studying generating plant and substation equipment. His tour included New York, Schenectady, Akron, Chicago, Detroit, and Pittsburgh.

Mr. Ralph Credland, Assistant Managing Director of the Widnes Foundry & Engineering Co. Ltd. for the past four years, has been appointed Joint Managing Director. Widnes Foundry is one of the Thos. W. Ward group of companies.

We regret to record the death on October 12, at the age of 77, of Mr. W. B. Parker, F.I.C., who had retired from the British Thomson-Houston Co. Ltd. in 1946, after 44 years' service. Mr. Parker was the company's Chief Chemist & Metallurgist from 1902 until 1943, when he was appointed Consultant Chemist & Metallurgist.

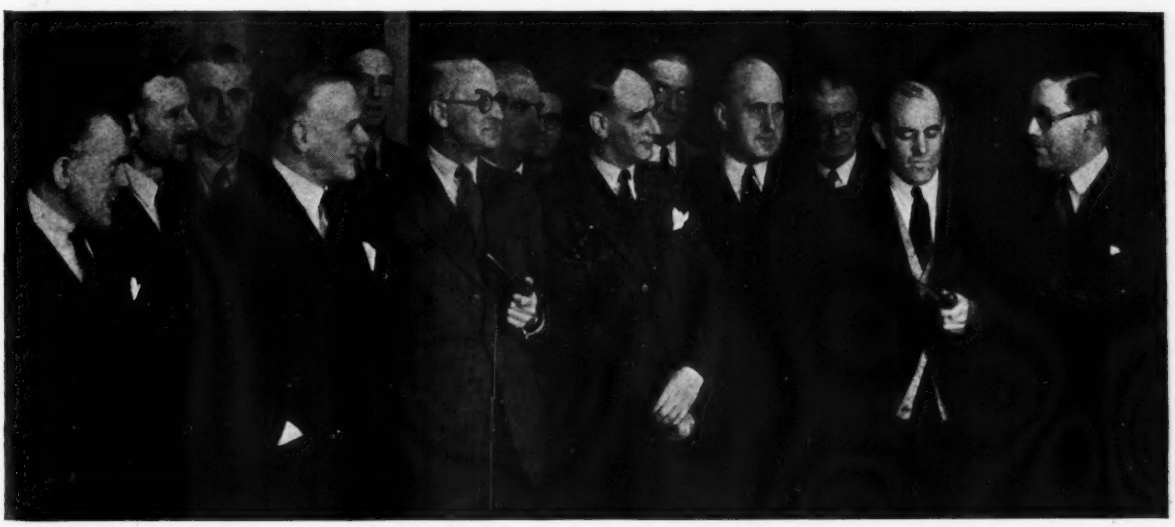
Mr. H. Hudson, who held the office of Secretary of the L.N.E.R. Superannuation Fund, G.N.R. Superannuation Fund, G.E.R. Pension Funds, and the L.N.E.R. Salaried Staff Assistance Fund, and, as recorded in our September 28 issue, has retired, joined the North Eastern Railway in 1902 as a junior clerk in the Chief Engineer for Docks Department at Hull. In 1911, after the award of a certificate of merit in the Chartered Institute of Secretaries examination, and a Distinction in bookkeeping and accountancy, he transferred to the Traffic Department serving at York, Hull and Bridlington, during which time he was one of the first recipients of the final certificate under the N.E.R. scheme of secondary education in railway operating, economics and law. Returning to the Docks Engineering Department, he became Docks Accountant for the Humber and N.E. Coast ports in 1925 and remained in that position until on the passing of the L.N.E.R. (Superannuation Fund) Act, 1939, he was invited by the management to undertake the establishment and organisation of the new Fund and to become its first Secretary with headquarters at Peterborough.

British Railways Officers in Northern Ireland

A party of British Railways officers visited Northern Ireland from October 12-15 to study the arrangements made by the Ulster Transport Authority to carry out the integration of transport with particular reference to the use of diesel railcars. Mr. A. G. Bowles, Assistant Chief Regional Officer, Western Region, headed the party, which on its return reported very favourably on the progress made by the U.T.A. in dealing with the many problems of integration involved from the operating and maintenance points of view. Other members of the party were:—

Messrs. A. J. White, Assistant Chief Regional Officer, Eastern Region; F. J. Wymer, Assistant Chief Regional Officer, Southern Region; B. X. Jessop, Assistant Chief Regional Officer, North Eastern Region; A. Stewart, Assistant to Chief Regional Officer, Scottish Region; B. Adkinson, Administrative & Motive Power Assistant, Railway Executive; M. G. Bennett, Superintendent, Operational Research Division, Railway Executive; and F. G. Richens, Chief Regional Office, Western Region.

During the tour the visitors examined the railcars in service, travelled from Belfast to Bangor on the new diesel train set recently brought into operation, inspected the new workshops at Duncrue Street, Belfast, and discussed the use of diesels with officers of the U.T.A. They also inspected diesel railcars operated by the Great Northern Railway (Ireland) and took part in a demonstration run from Belfast to Lisburn in the set working the "Enterprise" service.



British Railways officers on a visit to Northern Ireland. Mr. J. Courtney, Chief Engineer, Ulster Transport Authority, is seen on the left, and Mr. J. A. Clarke, General Manager, U.T.A., on the right

Passenger Charges Scheme, 1951

Reasons for decline in London area traffic receipts : proposed withdrawal of special concession fares

Mr. A. B. B. Valentine, Member, London Transport Executive, the first witness for the British Transport Commission when the Transport Tribunal resumed its inquiry into the draft Passenger Charges Scheme on October 16, said that the declining trend in London area receipts during the first 20 weeks of 1950 was 1·98 per cent. per annum, while in the second 20 weeks it amounted to 2·72 per cent. This he put down to petrol derationing and abnormal weather and also to a general tendency for the traffic to decline which could only be attributed to economic conditions. There had been a tremendous increase in private motoring at the expense of public transport.

Possibility of Cheap Fare Facilities

Questioned by Mr. Leon Maclaren, for the Croydon Borough Council and the L.C.C., on October 17, Mr. Valentine said that if the charges scheme was approved, they would watch very carefully its effect on traffic, and it might be that it would be commercial policy to introduce some form of cheap fare facilities. Receipts in London would not be improved at present by introducing cheap day return or concessionary rates. Circumstances there were quite different to those in the provinces. The volume of traffic in London was much more consistent all day than it would be in many cases where cheap day return fares had been applied outside the area.

Mr. Maclaren: "For some years now, that has been your opinion, and the result is that your revenue is going down and down?"

Mr. Valentine: "It went up and up until 1949 on exactly the same policy."

Asked whether he thought that in London cheaper fares would not produce more revenue. Mr. Valentine said he considered they would bring in less. Otherwise they would have been introduced.

Mr. Maclaren suggested that as a natural result of the last increase in fares there was a substantial fall in the number of early morning and season tickets issued and at the same time a decrease in ordinary fare receipts.

Mr. Valentine replied that that was so to a very limited extent. The decline in receipts which had continued since 1949 was more largely in optional travel than in essential travel.

Mr. Maclaren said he wished to press Mr. Valentine on the point that the scheme was based on the assumption that what might be described as essential traffic was not vulnerable.

Mr. Valentine answered that the B.T.C. did not say it was not vulnerable. Within certain limits it was vulnerable.

Essential Travel

When the inquiry reopened on October 18 Mr. Valentine was questioned by Mr. Maclaren concerning the effect of the proposed increased charges in the London area. The only alternative, claimed Mr. Maclaren, for people who did not travel by B.T.C. services in London was not to travel by public service vehicles, and thus the B.T.C. had a complete monopoly in the London area. Outside London the position was different.

Asked whether he refused to face the fact that passenger journeys in London, essential and optional, were falling, Mr. Valentine said that the volume of peak-hour travel to and from work, taking the area as a whole, was not declining. There had been declines on certain forms of transport and increases on others, which pointed to diversion of travel, but there was no evidence of a fall in essential travel of about £1,000,000 as had been suggested.

Mr. Maclaren asked whether there were any facts or figures to substantiate that the peak-hour travel had not fallen at all since the charges scheme came into operation.

Mr. Valentine replied that they could only establish that statistically by sample loading and the like, but even then there was an element of optional travel always mixed in with peak travel. That was what made it impossible to isolate essential from non-essential travel.

Mr. Maclaren also suggested the issue of a cheap day return ticket on London railways at a single fare from Monday to Friday in off-peak periods. He also suggested a minimum charge for this ticket of approximately 1s., which would protect the B.T.C. traffic up to four miles, which he maintained was its main source of revenue. He put that proposal on the ground that it would stimulate off-peak traffic, would not cost any appreciable amount, and would not affect short-distance bus traffic.

Mr. Valentine replied that the principal objection to such a measure was that the Executive would lose money rather than gain. The suggestion was a single fare for a return journey which implied that they had to double the volume of traffic before they would break even. They had in fact tried cheaper tickets in off-peak hours as an experiment in the past and it had not worked. Any additional travel stimulated tended to return home during the evening peak hours.

Mr. Maclaren: "Is it not a fact that the difference in the attitude which has been adopted in London to the attitude adopted outside London finds its root in that London Transport is really a monopoly?"

Mr. Valentine: "No. If we could cultivate more traffic, sufficient to increase receipts, we would do so. That is exactly the attitude in the provinces."

Mr. G. R. Rougier asked on behalf of the Southend Railway Travellers' Association and the Southend Corporation how long the present scheme would last if granted before there would have to be some sort of alteration again.

Mr. Valentine replied that that would depend entirely on future trends of costs and traffic. He could not say that he would expect it to last more than five years, and if inflation continued the B.T.C. might be back before the Tribunal within a few years with a new scheme to get further revenue.

When the hearing was resumed on October 19 Mr. Rougier said that on the London Tilbury Southend line the difference between the proposed monthly season ticket cost and the price passengers paid before the last increase was £16 13s. over a twelve month period or just under 40 per cent. He suggested that that was a heavy increase in the budgetary item of travel.

Mr. Valentine replied: "It is a relatively heavier increase than would apply to many other season ticket holders because the original rate on that line for October last year was heavily sub-standard."

Mr. D. J. Turner-Samuels, who is representing the London Trades Council and a number of unions, suggested that, but for the early morning return facilities the peak at 9 a.m. would be still higher, and that the effect of the early morning returns was to ease the problem by reducing the maximum peak.

Mr. Valentine: "That is not the view taken after most careful thought on this subject. We are quite satisfied in the London area—and on London Transport railways in particular—that the substitution for the present charging system of a consistent fare throughout the whole early morning period until after the main business peak has past, would give a smoother curve and tend to fill the valley between the peaks and reduce the sharp peak just before 8 a.m."

When the hearing was resumed on Monday the examination of Mr. Valentine was continued. In answer to Mr. J. E. Morrish, for the Post Office Engineering Union, Mr. Valentine said that on a certain section of London Transport railways a check had shown that 25 per cent. of the shift workers' tickets were issued between 8 a.m. and 9.30 a.m. It was thought, therefore, that a lot of people using this type of ticket were not shift workers in the narrower sense, *i.e.*, workers who were on changing shifts. A reasonable inference was that a large majority travelled regularly in that period because it was not a common time for double or treble shifts to start. They were travelling in a peak period.

Special Fare Concessions

From the finance point of view the withdrawal of this facility was not very high on the list of applications being made. But it was quite an inequitable privilege extended on no reasonable basis at all to certain people and withheld from others. A great difficulty arose in deciding who was entitled to it and who was not. He could see no infallible way of defining a group of workers who were entitled to a special concession by reason of their employment and the B.T.C. saw no ground on which any person could enjoy a particular privilege because of the employment he followed.

Mr. Valentine did not agree with a suggestion that the disinclination of people to travel was reflected in passengers travelling shorter distances. As bus services improved the average distance travelled would tend to fall because the services became more attractive to the short-distance riders. From Mondays to Fridays the journeys to and from work represented over 50 per cent. of all traffic.

Mr. Geoffrey Rippon, on behalf of East Ham and West Ham Corporations, referred to the B.T.C. view that concessional charges were justifiable only on commercial grounds, and that they should, therefore, be introduced and retained only if they attracted additional traffic in sufficient volume to produce more net revenue than would accrue without them.

Mr. Valentine replied that he could think of no other circumstance in which they might be justifiable. The ability of people to pay was relevant in considering the commercial results and in particular the level of the charge. Both the introduction and abolition of fares needed judgment and experience.

On the question of fares for children Mr. Valentine said that if it were profitable to the B.T.C. to offer special concessions to children of different ages from those now enjoyed it would seriously entertain a proposal But it was not part of its case that it would improve revenue. The extension of the age would undoubtedly result in a loss. These fares were about half the adult rate and for this reason it would involve nearly doubling the traffic to break even.

Economies from Season Tickets

Mr. Valentine agreed that the most important reason for the season ticket being a system peculiar to railways was that substantial economies arose from the stabilisation of traffic to rail which the season ticket system induced. The point of the stabilisation was not to get an assured revenue in advance but to prevent the day-to-day fluctuation of traffic as between road and rail and to provide a large volume of services on the roads to meet the demand. It reduced bus congestion and also tended to reduce the maximum amount of service that had to be provided. Another incidental advantage was that it reduced peak-hour congestion. Witness added that if the average speed of buses could be increased by one mile an hour a saving of £2 million a year would be effected.

Sir Malcolm Trustram Eve, for the B.T.C., told the Tribunal that if proposals for fare increases were put into effect immediately they would be bringing in £100,000 a day.

The inquiry was adjourned until October 24.

IMPROVEMENTS TO B.I.F. BUILDINGS AT CASTLE BROMWICH.—The wartime utility frontage of the Castle Bromwich Section of the British Industries Fair is to be scrapped, and a new permanent façade more in keeping with the status of the B.I.F. is to be erected in time for the next Fair, to be held from May 5-16, 1952. Plans have been passed by the Management Committee and work is to commence in the near future.

KENNET & AVON CANAL ASSOCIATION.—The Kennet & Avon Canal Association has been formed with the object of promoting wider knowledge of the Kennet & Avon Canal and greater use and extension of its amenities. Full membership subscription is 7s. 6d. a year. Subscriptions and communications should be addressed to the Association at Newbury Lock, Newbury, Berks. The first rally of the Association is arranged for Saturday, October 27.

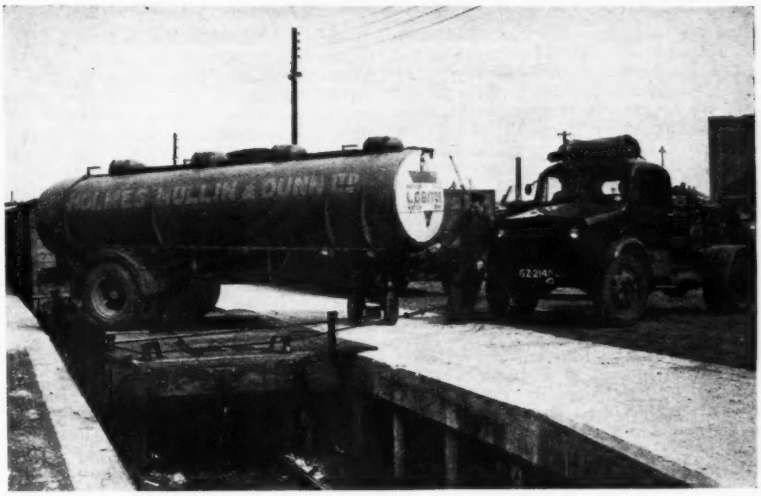
BRITISH STANDARD FOR GROMMETS.—The British Standards Institution has published a new standard, B.S. 1767:1951, covering grommets for general purposes (rubber and rubber-like materials) for use in various industries, such as automobile, electrical, telecommunication, and engineering. Attention has been confined to the natural rubbers and synthetic rubbers and rubber-like materials. Minimum physical test requirements are laid down as well as tests to meet special requirements. A table of dimensions gives a standard range of grommets from ¼ in. up to and including 3 in. An appendix is included setting out a suitable method for testing resistance to exposure cracking. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s.

New Road-Rail Transfer System

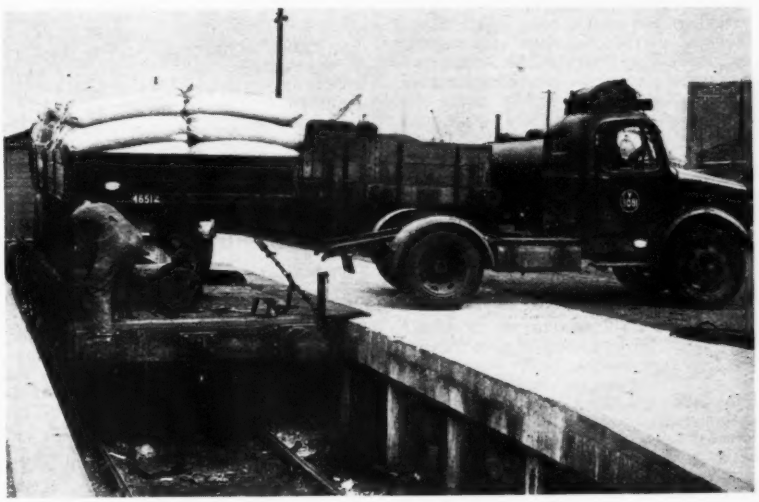
Method devised by Ulster Transport Authority for the conveyance of road trailers by rail

Further improvements in road-rail integration methods are envisaged in a new system of transferring a road articulated trailer to a railway wagon developed by the Ulster Transport Authority. The technical staff of the Authority has given this subject intensive study during the past three years. These investigations have resulted in a device allowing an articulated road trailer up to a carrying capacity of 10 tons to be loaded transversely on to a standard railway wagon by the driver using the power of the vehicle itself and three pulleys on the wagon.

The chief advantage claimed for the system is the elimination of all forms of lifting gear at stations and goods yards. The scheme will be further tested on the Northern Counties section with a view to encouraging industrial undertakings and farmers to deliver their own trailers or U.T.A. trailers laden with their respective traffics to the nearest station. It is claimed that an agricultural tractor can be adapted to haul the average standard articulated trailer, a mode of road transport which has become popular in Northern Ireland in recent years.



Loading petrol tank trailer on to a railway flat wagon



Road trailer about to be drawn off railway wagon for conveyance by road

---

LONDON MIDLAND REGION STATIONS CLOSING.—The London Midland Region announces that Darcy Lever Station, between Bolton and Bury, will be permanently closed for passengers, parcels, and passenger train merchandise as from October 29. Parcels and passenger train merchandise will be delivered from Bolton Trinity Street. Helmdon Village and Wappenham goods depots will be closed.

Staff & Labour Matters

Railway Wages and Salaries

Hearing before Railway Staff National Tribunal of railway unions' claim for 10 per cent. flat-rate increase

The Railway Staff National Tribunal began on October 19 its public hearing of the three railway unions' claims for a 10 per cent. increase for all salaried and conciliation staff. The Chairman of the Tribunal is Sir John Forster, K.C.; the other members are Sir Graham Cunningham, nominated by the Railway Executive and Sir Luke Fawcett, nominated by the trade unions. In addition to the 10 per cent. increase in rates of pay the A.S.L.E.F. is claiming enhanced payment for weekend working.

In support of the application, Mr. J. B. Figgins, General Secretary of the N.U.R., stated that the claim was based on three fundamental facts: (a) The increase in the cost of living which had already taken place; (b) the relationship between the level of wages and salaries on railways and those in outside industries; and (c) the shortage of staff arising from (b).

Cost of Living

The cost of living, it was contended, had risen by 13 points, or 11½ per cent., since the date of the union's last application for an increase in pay, compared with an increase of 7½ per cent. in rates of pay since June, 1947, which the N.U.R. regarded as the datum line.

It was submitted that the offer of the Railway Executive disturbed the relationship in the salary and wage rates of the various grades, whereas the claim of the unions which is for a percentage increase would maintain the relationship between grades. Speaking on the offer of the Railway Executive in regard to Saturday afternoon working, Mr. Figgins said it was not acceptable, and created anomalies in the case of men commencing duty before 2 p.m. on Saturdays and whose duties impinged on Saturday afternoon.

Dealing with staff shortages, Mr. Figgins claimed that the difficulties at present experienced were the inevitable outcome of the disparity in wage rates compared with outside industries, and unless urgent steps were taken to remedy the position, it would deteriorate.

For the A.S.L.E.F., Mr. J. G. Baty, General Secretary, stated that long training and skilled craftsmanship was necessary in drivers and firemen who had to handle a high-powered and costly machine, and a high degree of physical fitness is required.

Knowledge Required of Enginemen

He detailed subjects in which a satisfactory standard of knowledge is required: care and manipulation of the engine; reading of all signals and judgment of distances; manipulation of boiler adjuncts and methods of controlling the fire; constructional details of the locomotive; general methods of lubrication; methodical examination of the engine and the reporting of defects; general knowledge, and the proper application of rules and regulations; construction and action of automatic and steam brakes; and emergency remedying of failures.

Mr. Baty drew attention to the irregular hours of duty of footplate men and the effect of this on recruitment. The rates of pay were inadequate to attract men to the footplate and to compensate them for the kind of work which they are called upon to perform. The Railway Executive offer was quite inadequate and fell far short of their claim.

Referring to the increase in the price of commodities which the Railway Executive was having to pay, Mr. Baty said that the wage standards of his members should not be depressed because the nationalised service had indirectly to subsidise other industries in this way. Reference was also made to the increased cost of living and to the increase in wage rates in outside industry.

Weekend Working

In connection with the claim for enhanced payment for weekend working it was submitted that the general view today is that Saturday afternoon and evening should be regarded as a time when people should be free from their daily work, and that such sections of the people who are required to work during that period should be adequately compensated for the family, social and recreational disabilities occasioned thereby. The offer of the Railway Executive for Saturday afternoon payment was utterly inadequate.

Railway Clerks' Case

Mr. G. B. Thorneycroft, for the T.S.S.A., said that railway salaries had not kept pace with the increase in the cost of living since before the war, or even with increases since February 1, 1948. The percentage increases which had occurred over pre-war railway salaries were less than those received by workers generally or by other grades employed on the railways.

Differentials

The margin of the present differentials between the grades, he added, was inadequate for a reasonable incentive to staff to take higher responsibilities. The claim was on a percentage basis so that relativity between the grades should not be further disturbed.

Railway salaries were below those for other nationalised industries and other public services, and must be improved so as to minimise further resignations from the railway service and to attract and retain suitable new entrants. The railways were vital to the well-being of the nation, and those employed by them should be adequately paid.

When the hearing was resumed on October 22, Mr. W. P. Allen, Member of the Railway Executive for staff and establishment, said the Executive was concerned at the large number of wage claims that had been submitted to it; there had hardly been one month in which it had not had a major claim under consideration. He would have to contest the impression left by the unions' representatives that the Executive had done little to assist its staff during the past three-and-a-half years. Much had been done to assist all sections of the staff consistent with the obligations upon the railways to provide for the public the best possible service.

Executive Criticism of Staff

"We are not satisfied," continued Mr. Allen, "with the degree of assistance we have received from certain sections of the staff represented here today in our efforts to improve efficiency and reduce general operating costs." This was a feature which had an effect, particularly from the financial point of view, on the policy which the Executive had been compelled to adopt in considering the applications for wage increases.

British Railways staff on April 21 last totalled 590,101, and 442,846 were now represented before the Tribunal. Of this number 352,308 were conciliation staff, including 85,486 engine-drivers, motormen, firemen, and engine cleaners, and 90,538 salaried staff.

Conditions Improved

Conditions of employment had been improved in recent years apart from pay increases which had become operative. Discussions were continually taking place between the Executive Staff Conference and the unions as part of the normal procedure of the machinery of negotiations. These had resulted in other benefits since 1948.

Referring to other costs which had to be considered by the Railway Executive, Mr. Allen said that the salary and wages bill of the four main-line companies in 1938 amounted to £103,750,000, and in 1951, on the basis of existing rates of pay, it was estimated at £241,250,000, an increase of £137,500,000 or 132·5 per cent. The 1951 figure included the agreement of February, 1951, but had no regard to any decision by the present Tribunal. The figures did not include hotels, refreshment rooms, and restaurants.

Cost of Welfare Measures

The executive had also to face national insurance of £6,592,000 today, against £1,543,000 in 1938 and superannuation and pensions had jumped from £3,781,000 in 1938 to £6,097,000 in 1950. The cost of providing uniforms, £597,000 in 1938, was £2,200,000 in 1950. There were also other costly items, such as welfare and education.

"The Railway Executive intends, as far as circumstances permit, to provide amenities with a standard and scale in keeping with industrial conditions," said Mr. Allen. Authorised expenditure on works of a welfare character for the first nine months of 1951 was approximately £1,250,000. No scheme was authorised unless it could be completed within a matter of months.

The British Transport Commission application for permission to increase fares, now before the Transport Tribunal, did not take account of the present claims of the unions as a whole. If the Transport Tribunal confirmed the B.T.C. application, there would be an estimated increase in gross receipts of approximately £21 million, leaving a deficit for next year of about £26 million.

Railway Executive Offer

Mr. Allen said that the Railway Executive had made the unions an offer (detailed in *The Railway Gazette* issue of September 21), which had been rejected. The offer would mean that some would receive increase in excess of the cost of living increase, some would be on a par with it, and a few would be below. The

number of people in the service who would receive an increase of less than 11·5 per cent. under the offer were 76,393. He contended that the Executive offer would reasonably meet the changes which had taken place in the cost of living since August, 1950.

As to the Railway Executive offer in regard to Saturday working, Mr. Allen pointed out that those engaged in every form of public service must inevitably expect in performing this service to place themselves at the convenience of the general public.

Staff Recruitment and Wastage

Referring to the recruitment and loss of staff during the first eight months of this year, Mr. Allen said that 7,372 clerical staff, male and female, were recruited, and 4,731 left of their own accord. Among the traffic staff they recruited 15,310 and lost 10,892; goods and cartage numbered 12,930 recruited, 10,240 lost; permanent way, 7,285 recruited 5,392 lost; and footplate staff, 5,875 and 5,444. The total recruitment in these departments was 56,755, and those resigning of their own accord numbered 43,357.

It was admitted that there were difficulties in recruiting staff in areas of acute shortages, but this was due to the abnormal competition for the limited manpower available and was not merely a matter of level of rates of pay. Figures of labour turnover were quoted to illustrate that the regularity of employment of railway staff was at least as good as that in the principal manufacturing industries.

Unless winter conditions were particularly severe and widespread, Mr. Allen added, it was not expected that difficulty on the railways would affect more than a small percentage of the traffic carried, and then only over certain routes.

Attractions of Railway Work

Concluding the case for the Railway Executive on October 23, Mr. Allen said: "I was a little sorry to find on two occasions that it was suggested that discontent exists among our staff. Much could be done in securing the right type of men and women if all people in responsible positions drew attention to the more attractive features of railway work rather than to the less attractive.

"I do not find that general discontent exists and I meet many men and women in the service. Many thousands of them in every branch of the industry are doing everything in their power to assist the efficiency of the undertaking: If any criticism or discontent does exist, I would suggest it arises from one cause only—that up to date nationalised transport has not been able to pay its way. With a continuance of assistance we shall, given the opportunity, in due course be able to remove any stigma attached to the railways, to meet more fully their financial commitments, and shall reach a situation where any criticism in this direction will no longer hold good."

Replying, Mr. Figgins said that if the railwaymen's claims submitted in 1948, 1949, and 1950 had been conceded, it would have prevented the unfortunate circumstances which were being witnessed. In inland transport, if these justifiable claims had succeeded it would have prevented the creation of the huge lack of staff on British Railways which was going to cause so much inconvenience to the public and industry.

Railwaymen, said Mr. Figgins, by their traditional loyalty, had made a great effort to save the situation in British transport. Concessions had been made—about increases in hours from 44 to 48, giving up a week's holiday, the employment of women—and there were now 6,000 people over 65 years of age in the employ of British Railways as a result of their concessions and their offer to help in this critical period. What would have been the result if these concessions had not been made? The number of people coming into the service was not going to meet the situation.

It was an absolute disgrace that the administration of a nationalised concern was such that freight was having to be moved by road. The moving of coal by road had meant a loss to British Railways of £1,250,000. Four thousand tons of bricks, 50,000 tons of fertilisers, and much cement and steel tubes had been diverted to road transport.

Railway Staff Discontented

They wanted to avoid serious trouble among railwaymen, but there was discontent which might lead to trouble. The Railway Executive did not see that only by the provision of a reasonable wage were they going to get suitable men to do the job.

Mr. J. G. Baty said his union had been modest in its claims. Top-grade locomotive men considered they had not had a square deal and there was profound disquiet in the ranks.

The Tribunal was adjourned until October 24.

London Busmen's Pay Increase

Negotiations between the London Transport Executive and the Transport & General Workers' Union on the claim for a substantial pay increase have resulted in an increase of 8s. 6d. a week for drivers and conductors of central and country buses, and trams and trolleybuses.

Drivers of central buses with more than twelve months service will receive a wage of 144s. 6d. a week under the new agreement and conductors 140s. 6d. a week. The corresponding rates for drivers and conductors of trams and trolleybuses are 142s. 6d. and 140s. 6d. respectively. Increases are retrospective to August 29.

WHITE PASS & YUKON RAILWAY CO. LTD.—An interest payment of 1 per cent. will be made in respect of the year 1950 to the holders of the 6 per cent. income debenture stock of the White Pass & Yukon Railway Co. Ltd. who were registered on September 21 last.

UNITED STATES FREIGHT RATES.—The U.S.A. railways have requested the Interstate Commerce Commission to reconsider its past decision on freight rate increases and approve the full 15 per cent. requested by the railways in March. The new request would mean a rise above present levels of about 7·2 per cent. for the country as a whole.

LIVERPOOL OVERHEAD TRAFFICS.—There were increases in receipts of the Liverpool Overhead Railway on each of the five weeks ending in September, this year, as compared with those for the equivalent period of 1950. The greatest improvement was in the week ended September 16, when traffics rose by £346 to £2,771. Aggregate receipts for the 39 weeks to September 30 amounted to £105,579 and were £5,492 higher.

Contracts & Tenders

As part of its 1952 programme the Railway Executive has recently placed the following contract:—

Charles Roberts & Co. Ltd.: 20 all-steel bogie brake third-class carriages.

Gloucester Railway Carriage & Wagon Co. Ltd.: 50 third-class corridor brake carriages.

The Crown Agents for the Colonies have recently placed a contract with the Gloucester Railway Carriage & Wagon Co. Ltd. for 20 low-side wagon underframes for the Gold Coast Railway.

Under its 1952-53 programme, the Indian Government has recently placed the following contracts:—

Gloucester Railway Carriage & Wagon Co. Ltd.: 100 third class coaches (shells only).

La Brugeoise et Nicaise & Delcuve, S.A., Belgium: 400 bogie carriage underframes; 50 four-wheel carriage underframes; 300 bogie open wagons, Type "MBOC"; 150 bogie rail-trucks, Type "MBR"; 100 third class coaches (shells only); six broad-gauge bogie special trucks for carrying metre-gauge engines and tenders; five broad-gauge four-wheel tank wagons for carrying liquid chlorine. The London Representatives are Nye & Menzies Limited, 62, New Broad Street, E.C.2.

Metropolitan-Cammell Carriage & Wagon Co. Ltd.: 1,000 four-wheel covered wagons.

The New South Wales Government Railways have recently ordered from Australian General Electric Pty. Ltd. 20 General Electric-Alco main-line diesel-electric locomotives. These locomotives, which are rated at 1,750 h.p. and have a designed maximum speed of 75 m.p.h., are of the 0-6-6-0 type. Delivery in Australia is expected early in 1952.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, recently stated that the First Secretary (Commercial) at the British Embassy, Brussels, has reported a call for tenders (No. 2652/463) by the Belgian State Railways for the supply of electro-mechanical signalling equipment as per specification. Tenders should reach the Société Nationale des Chemins de fer Belges, Direction du Materiel et des Achats, Brussels, before 2.30 p.m. on November 7.

A copy of the tender documents in French or Flemish is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade and a second copy is available for loan to United Kingdom manufacturers in order of written application.

The Board of Trade Special Register of Information Service has also stated that the United Kingdom Trade Commissioner at Johannesburg has reported a call for tenders (No. B.3501) by the South African Railways for the supply of steel tyres in accordance with specification C.M.E. 2/1950 and drawing S. 9700. The drawing may be inspected at the Office of the Chief Stores Superintendent, South African Railways, Johannesburg, or any S.A.R. Stores Superintendent. Tenderers can obtain copies on application to any of these offices on payment of 7s. 6d. a set. The drawing may also be inspected at the Office of the High Commissioner for the Union of South Africa, London, W.C.2.

Tenders must reach the Chairman of the Tender Board before 9 a.m. on Thursday, December 6. If posted, tenders must be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg, and must be despatched in time for sorting by the Post Office into P.O. Box 7784 be-

fore the closing time. Other arrangements have been made for deliveries by hand or telegraph. A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Export Department.

Notes and News

Estimator Required.—Charles Roberts & Co. Ltd., Horbury Junction, near Wakefield, have a vacancy for an estimator with experience of structural steel and heavy engineering work. See Official Notices on page 475.

Vacancies for Design Engineers and Draughtsmen.—Applications are invited for the posts of design engineers and draughtsmen, required by a firm manufacturing diesel-electric locomotives. See Official Notices on page 475.

Vacancy for Civil Engineering Draughtsman Required.—Applications are invited for the post of civil engineering draughtsman, between 25 and 40 years of age, required by the Sudan Railways, for service in the Sudan. See Official Notices on page 475.

Institution of Civil Engineers.—Mr. A. S. Quartermaine, Chief Engineer, Western Region, British Railways, will deliver his Presidential Address to the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. on November 6.

Metal-Working Machine Tools Team.—On October 16 a productivity team representative of British manufacturers of metal-working machine tools sailed for the U.S.A. This team is complementary to that concerned with wood-working machinery which went to the U.S.A. in August and is also sponsored by the Engineering & Allied Employers' National Federation and the Machine Tool Trades Association. Mr. R. D. G. Ryder, Managing Director, Thos. Ryder & Son Limited, leads a team of 15. Mr. F. H. Harris, Works Manager of B.S.A. Tools Limited, is Secretary. The main object will be to study methods of American manufacturers of metal-cutting and abrading machine tools and to obtain from the American industry as a whole information that may be of interest and value to British makers.

Temporary Withdrawal of Alexandra Palace Services.—Among the temporary train service reductions in force from October 29 is the withdrawal of the Finsbury Park and Alexandra Palace shuttle service.

Mechanical Engineer Required.—Applications are invited for the post of mechanical engineer, required by the Railway Department, Malaya, for three years in the first instance, with prospect of permanency. Candidates should be preferably under 36 years of age. See Official Notices on page 475.

Vacancy for Designing Mechanical Engineer.—Applications will be received by the Agent General for Queensland, 409, Strand, London, W.C.2, from persons desirous of joining the service of the Commissioner for Railways, Brisbane, Queensland, Australia, as a designing mechanical engineer. See Official Notices on page 475.

Cessation of Traffic in Suez Canal Zone.—On October 23 the British military authorities took charge of all railway and road traffic in the Suez Canal zone. The station and workshops at Suez, and all signal boxes in the area are occupied by British troops to enforce a ban on Egyptian railways services imposed, it is stated, because of refusal of the State Railways to meet British Army needs in the zone.

Transport Visual Aids.—A meeting of the Visual Aids Group of the Institute of Transport was held at 80, Portland Place, London, W.1, on October 22. Mr. T. W. Royle presided at the meeting at which four films were shown. The first was a British Transport Commission safety instructional film dealing with common errors and their avoidance on permanent way. The second showed some impressions of the British Overseas Airways Corporation ambulance plane service to the island of Barra in the Hebrides. The Canadian Pacific Railway showed a tourist film in full colour; finally the Group was shown an Air Force instructional film dealing with the ejection of pilots from modern fast-moving aircraft. There was a large attendance at the meeting and each of the films was discussed.

Standard Buildings for British Railways.—With the object of producing buildings of good appearance on mass-production lines, standard designs are being prepared for the British Railways for various small structures used for railway purposes, and designs have already been produced for signalboxes, huts, and first-aid rooms.

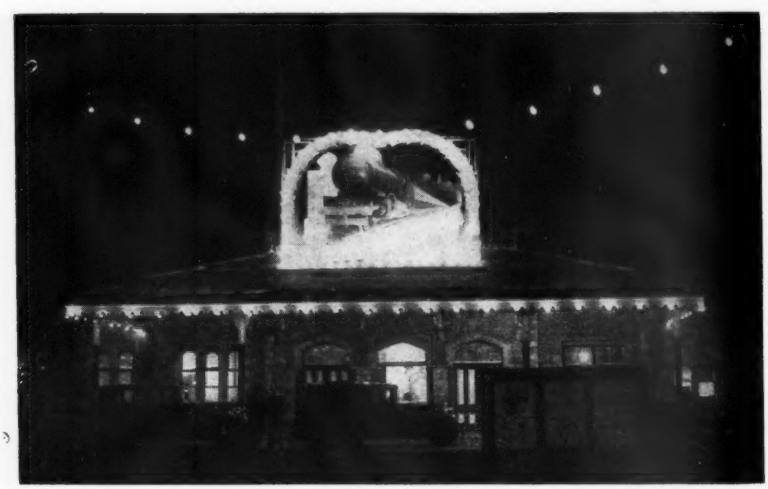
"Britannia" Class Temporarily Withdrawn.—Following the failure of the "Britannia" class Pacific locomotive *William Shakespeare*, when hauling the "Golden Arrow" on Sunday, October 21, the Railway Executive has decided to withdraw temporarily all the 20 or so engines of this class which are in service. The failure was due to a broken connecting rod and pending further investigation into the reason for the breakage the locomotives have been withdrawn as a protectionary measure. There will be no resultant alterations to train services.

Exide Motor Show Luncheon.—At the luncheon given by Chloride Batteries Limited, manufacturers of Exide products, at the Clarendon Restaurant, Hammersmith, on October 17, the opening day of the Motor Show at Earls Court, Mr. H. V. Schofield, Director (Sales), Chloride Batteries Limited, proposed the toast of the press and guests. Sir Francis Low, London Editor of *The Times of India*, replied for the press, and Mr. C. Kenneth Horne, Director of the Triplex Safety Glass Co. Ltd., for the guests.

Demonstration of Permanent Way Mechanical Appliances.—Mr. John Elliot, Chairman of the Railway Executive, on October 31 will open a two-day demonstration of permanent way mechanical appliances at Marylebone Goods Depot. The demonstration has been arranged to show the steps taken by British Railways to speed up work on the permanent way, to help overcome the acute staff shortage in permanent way grades, to stimulate recruiting in those grades, and to show how heavy permanent way work is performed increasingly by the machine operator rather than by the manual labourer. The demonstration will be open to the general public between 1 and 4 p.m. on October 31 and November 1, the mornings being reserved for home and overseas railway staffs, professional and technical bodies, and parties from engineering colleges and schools.

British Railways Standard Lineside Signs.—The Railway Executive has produced designs for standard boundary posts, mile posts, and gradient boards. The new posts and boards will be made of concrete and the designs allow for mass production. Five different types of boundary post have been designed, to show: (1) The boundary of railway property; (2) Regional boundaries; (3) boundaries of railway districts; (4) sections covered by inspectors; and (5) stretches of line maintained by various gangs. These posts and the new mile posts and gradient boards will be provided wherever renewals are necessary or additional posts required. In addition, concrete lamp posts, which also serve as supports

Station Illumination at Morecambe



Special lighting display at Morecambe Promenade Station, London Midland Region, in connection with town illuminations

OFFICIAL NOTICES

AUSTRALIA.

QUEENSLAND GOVERNMENT RAILWAYS.

POSITION VACANT.

APPLICATIONS will be received by the undersigned until November 30 from persons desirous of joining the service of the Commissioner for Railways, Brisbane, Queensland, Australia, in the following capacity:—

Designing Mechanical Engineer, Ipswich Railway Workshops. Present salary range £845 10s. to £970 10s. per annum, Australian currency. Applicants must be fully qualified to undertake work in the preparation of drawings involving the design of, and calculations for, any mechanical appliance, engine or machine, including the proportioning of locomotives, carriages and steel rolling stock, also the preparation of estimates and carrying out of test work such as general efficiency, dynamometer and general research work. Applicants must supply full details of technical and academic qualifications and also the extent and nature of practical experience in engineering workshops.—D. J. MUIR, Agent General for Queensland, 409, Strand, London, W.C.2.

WE buy used or unserviceable Steel Files at good prices, in lots of 2 cwts. or more.—THOS. W. WARD LTD., R.S. Department, Albion Works, Sheffield.

MESSRS. CHARLES ROBERTS & CO LTD., Horbury Junction, Nr. Wakefield, have a vacancy for an Estimator with experience of structural steel and heavy engineering work. Please apply stating experience, age, and salary required, to the Managing Director.

COMPANY manufacturing diesel electric locomotives will accept applications for the following staff:—Design Engineers and Design Draughtsmen. Highly specialised in electrical and mechanical design and manufacturing procedure of d.c. traction generators, traction motors and control equipment. Also Draughtsmen experienced on similar work. Good salaries paid to men of first class experience. Three years agreement. Every facility to find suitable accommodation will be given. Offers only to first class men.—Box 245, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

HIS MAJESTY'S COLONIAL SERVICE

APPLICATIONS are invited for the following post:—Mechanical Engineer, Railways Department (27333/41)—Malaya. The duties are to take control of and organise the output of a group of shops in a works engaged in the repair of locomotives and buildings and repair of coaching and goods vehicles under the supervision of a works manager. Appointment will be on 3 years probation for pensionable and permanent employment in the salary scale (basic) $440-$1,000 a month (£616-£1,400 per annum at current sterling equivalent of one Malayan dollar = 2s. 4d.). In addition, expatriation allowance, also pensionable, at rates between £126 and £252 per annum. A generous cost-of-living allowance is at present payable, subject to maximum of $505 per month for married officers and $240 for bachelors. A low rent is charged for furnished quarters when provided. Free passages on appointment and on leave. Candidates, preferably under 36, should be A.M.I.Mech.E. or possess recognised equivalent qualifications and must have had Railway workshops experience. Intending candidates should apply in writing to the DIRECTOR OF RECRUITMENT (COLONIAL SERVICE), COLONIAL OFFICE, Sanctuary Buildings, Great Smith Street, S.W.1, giving brief details of their age, qualifications, and experience. They should mention this paper and quote the reference number 27333/41.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth, 8½ in. by 5½ in. 82 pp. Diagrams. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and woodworking equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21s. net. By post 21s. 9d. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

SUDAN GOVERNMENT

THE SUDAN RAILWAYS require a Civil Engineering Draughtsman aged 25-40 for service in the Sudan to supervise the work in the drawing office, instruct subordinate staff in draughtsmanship, and prepare designs as required. Applicant must be neat, quick and accurate draughtsman with a sound knowledge in design and construction of varied civil engineering structures, preferably allied to railway or harbour work. He should be capable of taking out quantities and preparing specifications and estimates. Preference will be given to candidates with experience on reinforced concrete design. Appointment will be on short-term contract for 5 years, subject to satisfactory completion of probationary period, at a starting salary between £E.593 and £E.860 per annum, according to age, qualifications and experience. Bonus of one month's pay for each year's service payable subject to a maximum of six months' pay. A cost-of-living allowance varying between £E.142 and £E.352 is at present payable according to the number of dependants. Outfit allowance of £E.40 is payable when the contract is signed. Further information and application form will be sent on receipt of postcard only quoting "C.E. Draughtsman 4/1901," and name and address in *block letters* addressed to The Sudan Agent in London, Wellington House, Buckingham Gate, London, S.W.1.

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

DRAUGHTSMEN required for electric and diesel-electric locomotive design Previous experience in this class of work not essential. Good rates, working conditions and prospects of advancement to the right men. Apply in writing stating age, qualifications, experience, etc., marking envelopes "Traction Projects," to:—Personnel Manager, METROPOLITAN-VICKERS ELECTRICAL CO. LTD., Trafford Park, Manchester, 17.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

---

for a platform, have been designed as a standard part of station equipment. They can be adapted for either tungsten or fluorescent light fittings; to avoid overhead wiring, power is fed to the fitting through the post from its base.

Egyptian State Railways Posters.—The Egyptian State Railways have issued six new posters of striking design, which by a skilful use of motifs suggesting both past and present civilisations bring out both the archæological appeal of the country and its attractiveness as a winter resort.

Skefko Ball Bearing Co. Ltd.—At a meeting of the directors of the Skefko Ball Bearing Co. Ltd., on October 3, an interim dividend of 3d. per stock unit of 5s., free of income tax, was declared on the ordinary capital, excluding the new 400,000 ordinary shares of 5s., in respect of the year ending December 31, 1951.

British Railways Coal and Steel Carryings.—During the weekend to October 22, British Railways cleared 370,000 tons of coal from deep-mined pits and opencast sites, making a total of 3,195,490 tons for the week. The latest figures for iron and steel show that 200.669 tons were conveyed during the week ended October 13 from the principal steelworks.

Strike on Sligo Leitrim & Northern Counties Settled.—A strike on the Sligo Leitrim & Northern Counties Railway, which began on October 6, has been settled. Normal services were resumed on October 22. The claim was for a wages scale similar to that of Coras Iompair Eireann which the company rejected on the grounds that the money was not available. The men agreed to resume work when given an assurance that the directors would get in touch with the Governments of the Republic and Northern Ireland with a view to obtaining the necessary financial assistance. Increases in maximum railway charges for the carriage of passengers and merchandise on the system, necessitated by increased wages and higher costs generally, have recently been authorised.

Potato Harvest Specials.—Eight trains, six of them special trains, brought back to Glasgow on October 20 the school potato harvesters who, since the beginning of this month, have been gathering the crops in Perthshire, Angus, Kincardine, and Ross-shire.

London Transport Circular Bus Tours.—London Transport circular bus tours which take sightseers on a 2-hr. round trip of famous places in London ran the last time on Sunday. Known as service "J" this service has carried 58,000 passengers at 2s. 6d. a head since it began last May.

Irish Mail Steamer to be Converted to Oil Burning.—It is announced by the Scottish Region of British Railways that the Stranraer-Larne mail steamer *Princess Margaret* has entered the Glasgow yard of D. & W. Henderson & Co. Ltd. for reconditioning and conversion from coal to oil burning. Her place on the Stranraer-Larne mail service has been taken by the Denny built turbine steamer *Princess Maud*.

Season Ticket Rates Increased in Ulster.—On November 12 revised charges of the Ulster Transport Authority will come into force. There will be no increase in ordinary single or return fares, but road and rail season tickets, including weekly tickets, and workers' daily and weekly tickets will be increased by 10 per cent. A revised scale of rates for parcels carried by passenger train or bus will be made available on November 1. Other merchandise conveyed by passenger train will be subject to a 20 per cent. increase. Merchandise and livestock carried by road will come under a revised classification, and scale of rates still to be announced. Rail freight traffic rates, from station to station, will be advanced by 20 per cent. Collection and delivery charges are to be on the revised road freight scales.

La Guaira & Caracas Railway Co. Ltd.—The directors of the La Guaira & Caracas Railway Co. Ltd. announce that repayment of the whole of the outstanding 5 per cent. debenture stock will be made on November 13, together with interest. The last issued accounts showed £375,045 outstanding. Earlier this month an extra-ordinary meeting approved a proposal for voluntary winding up following the sale of the undertaking to the Venezuelan Government.

Increased Holiday Traffic to Scarborough.—The number of passengers arriving at Scarborough by rail during the recent holiday season from May to September inclusive totalled 612,206 as against a total last year of 610,142. It is stated by the North Eastern Region of British Railways that ordinary passengers increased to 445,598 from 435,064, but excursion passengers were slightly less, being 166,608 against 175,078, which is attributable to excursionists going to London for the Festival of Britain.

Institute of Transport (Northern Ireland Section):—The monthly meeting of the Northern Ireland section of the Institute of Transport was held on October 18 in the Headquarters premises of the Ulster Transport Authority at 21, Linenhall Street, Belfast, the Chairman, Mr. James W. Hutton, presiding. A paper entitled "Transport Publicity" was read by Mr. C. Grasemann, formerly Public Relations & Publicity Officer, Southern Region, British Railways. On the motion of Colonel R. McCreary, seconded by Mr. A. M. Beaton, Advertising & Publicity

Superintendent, G.N.R.(I.), a vote of thanks to the speaker was passed with acclamation. The Chairman announced that at the next monthly meeting of the section on November 15 the speaker will be Mr. M. A. Cameron, Principal Traffic Officer, British Transport Commission, and the subject, "Transport Conditions in Great Britain."

Continental Services.—With the ending of British summer time on October 21, Continental boat trains now leave Victoria one hour earlier. In the inward direction the arrival times in London are also one hour earlier, except the "Night Ferry" sleeping car service *via* Dunkerque and Dover, which continues to arrive at Victoria at 9.10 a.m. The Southampton-Havre services from and to Waterloo remain unchanged.

British Electric Traction Co. Ltd. Dividends.—The directors of the British Electric Traction Co. Ltd. have declared the following interim dividends, less income tax, on account of the financial year ending March 31, 1952, payable on December 15, 1951: 6 per cent. cumulative participating preference stock, 3 per cent. actual (the same); 8 per cent. non-cumulative preferred ordinary stock, 4 per cent. actual (the same); deferred ordinary and "A" deferred ordinary stocks, 7½ per cent. actual (the same).

Forthcoming Meetings

October 26 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. Discussion on "The Principles of Continuous Gauge Control in Sheet and Strip Rolling," by Mr. W. C. F. Hessenberg and Mr. R. B. Sims.

October 31 (*Wed.*) and November 1 (*Thu.*).—British Railways Public Demonstrations of Permanent Way Mechanical Equipment, at Marylebone Goods Depot, Rossmore Road, N.W.1, between 1-4 p.m. each day.

November 1 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society, in the Clerks' Dining Club, Bishops Bridge Road, Paddington, W.2, at 5.45 p.m. "Young Men's Discussion."

November 1 (*Thu.*).—Institute of Transport, Merseyside Section, at the Chamber of Commerce, Liverpool, at 6.45 p.m. "The Growth & Development of the Institute," by Mr. D. R. Lamb, Past President.

November 2 (*Fri.*).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, at 7.30 p.m. "On Highways & Byways of the French Railways, 1951," by Mr. David L. Smith.

November 3 (*Sat.*).—Stephenson Locomotive Society. Annual Dinner at the Temple Room, Imperial Hotel, Birmingham, at 7 for 7.30 p.m.

November 5 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, W.1, at 5.30 for 6 p.m. "Passenger Transport in Athens," by Mr. G. F. Sinclair.

November 5 (*Mon.*).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7 p.m. "Caledonian Locomotives," by Mr. A. B. McLeod.

November 5 (*Mon.*) to 10 (*Sat.*).—International Goods Train Timetable Conference. Autumn session in Vienna.

Railway Stock Market

Stock markets have been dominated by City hopes as to the outcome of the General Election, and prices generally again moved higher. Many industrial shares are now in short supply and this shortage will mean a big uptrend in prices if there is a Conservative victory. Buyers are likely to rush in for a time and it may be some little while before the higher prices bring in sellers and the market becomes normally supplied with shares. Once again shares of companies expected to pay more if dividend limitation is ended were chief favourites. Concentration on home industrial shares has switched interest from overseas securities and foreign bonds, and also Canadian and foreign rails have lost part of recent gains. British Funds again improved and are expected to go higher in price for the present, whatever the outcome of the election. The view persists in many quarters that if the Labour Party wins the election British Funds and overseas securities would probably be the only sections which would attract much attention from buyers until it were possible to assess the investment outlook. Looking ahead it seems that in any case the prospect of growing competition in export markets must reduce the earnings of a wide range of companies. A fair number will probably have to reduce their dividend payments in 1952, but so far, markets are not taking more than a very short view.

Foreign rails recorded small irregular movements. Canadian Pacifics have come back sharply in common with most other overseas securities which have reflected profit-taking after recent big gains. Canadian Pacifics have receded to $70, although the market continues to expect an increase in the dividend. The preference stock was firm at 73½ and the 4 per cent. debentures 89¾. Antofagasta firmed up to 18½ and the preference stock was 76½. San Paulo 10s. units have changed hands around 15s. 10½d. and Brazil Rail bonds eased to 5¾. Bolivar "C" debentures were 49.

Leopoldina stocks were less active. The ordinary changed hands around 10¼, the preference was 26¾, and the 4 per cent. debentures 95, while the 6½ per cent. debentures came back to 141½. Leopoldina Terminal 5 per cent. debentures on the other hand firmed up to 96½; the ordinary units were 1s. 7½d. Manila "A" debentures have been firm at 81 and the preference shares were 9s. 6d.

Mexican issues came back with dollar stocks and profit-taking followed recent gains. Mexican Central "A" bonds were 81 and National of Mexico 4½ per cent. non-assented 45. Buyers were about for Nitrate Rails, which improved to 25s. 6d., and Taltal were 23s. 3d. United of Havana stocks were again easier in the absence of any official news of nationalisation developments. The 1906 debentures were back to 19. In other directions Chilean Northern debentures have changed hands around 40. Guayaquil & Quito first mortgage debentures were active around 36½. White Pass Yukon 5 per cent. debentures marked 221 and the income debentures 96½.

Among road transport shares, Southdown were 93s. 9d., West Riding 46s., Lancashire Transport 57s. 6d., and B.E.T. stock £480.

In recent weeks there has been rather more attention paid to foreign rail stocks, partly as a result of the increased interest in overseas securities generally. Whether foreign rails will remain more popular may well depend on the outcome of the General Election. If there is no change of Government brokers expect that overseas securities of all kinds will increase in popularity. Nevertheless, apart from considerations of this kind, many overseas rails, although speculative, seem moderately valued and may offer reasonable scope for appreciation in price over a period.

Engineering shares, after easing, firmed up and participated in the uptrend of markets. There are conflicting views as to how steel nationalisation would be unscrambled by a Conservative Government. Companies such as Vickers, Cammell Laird, Guest Keen, John Brown, and B.S.A. it is confidently expected would have an opportunity to buy back their steelworks; but this would probably mean they would have to raise additional money in cases where nationalisation compensation has been used to acquire additional interests. This week, Vickers, Guest Keen, and John Brown have tended to rally. T. W. Ward at 78s. 9d. were good again because of the additional payment expected if dividend limitation does not become law.

Among shares of locomotive builders and engineers Hurst Nelson were 62s. 6d. and Birmingham Carriage 39s. Vulcan Foundry were 27s., Beyer Peacock 33s. 6d., Gloucester Wagon 16s. 3d., North British Locomotive 19s. 3d., and Wagon Repairs 13s. 6d., while Charles Roberts rose to 28s. 3d.

Traffic Tab'e of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1949/50	No. of week	Aggregate traffics to date: Total 1950/51	Aggregate traffics to date: Increase or decrease
South & Cen. America	Antofagasta ...	811	12.10.51	£ 135,230	+ £ 60,270	41	£ 4,891,470	+ £ 2,226,846
	Costa Rica ...	281	Aug., 1951	c1,295,820	+ c150,407	9	c2,568,670	+ c149,366
	Dorada	70	Aug., 1951	36,976	— 5,426	35	288,447	— 24,505
	Inter. Ctl. Amer....	794	Aug., 1951	$1,050,631	— $52,196	35	$9,022,027	— $204,818
	Paraguay Cent. ...	274	12.10.51	£324,403	+ £110,824	15	£4,952,535	+ £2,125,572
	Peru Corp. ...	1,050	Sep., 1951	$7,933,000	+ $91,000	13	$24,517,000	+ $1,070,000
	,, (Bolivian Section)	66	Sep., 1951	Bs.14,404,000	+ Bs.1,620,000	13	Bs.41,395,000	+ Bs. 10,886,000
	Salvador	100	July, 1951	c125,000	+ c20,000	4	c125,000	+ c20,000
	Taltal	147	Sep., 1951	$2,449,000	+ $738,700	13	$6,304,000	+ $1,825,300
Canada	Canadian National†	23,473	Aug., 1951	18,335,000	+ 5,618,000	35	135,769,000	+ 30,949,000
	Canadian Pacific† ...	17,037	Aug., 1951	12,087,000	+ 3,514,000	35	93,011,000	+ 14,227,000
Various	Barsi Light* ...	167	Aug., 1951	22,500	— 1,785	21	191,250	+ 31,920
	Egyptian Delta ...	607	10.4.51	17,513	— 267	4	17,513	— 267
	Gold Coast ...	536	Aug., 1951	220,509	+ 16,972	21	1,280,126	+ 109,832
	Mid. of W.Australia	277	July, 1951	46,474	+ 2,594	4	46,474	+ 2,594
	South Africa ...	13,398	22.9.51	1,941,885	+ 237,799	25	47,227,964	+ 5,992,439
	Victoria	4,744	June, 1951	1,812,933	+ 118,002	52	—	—

* Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1